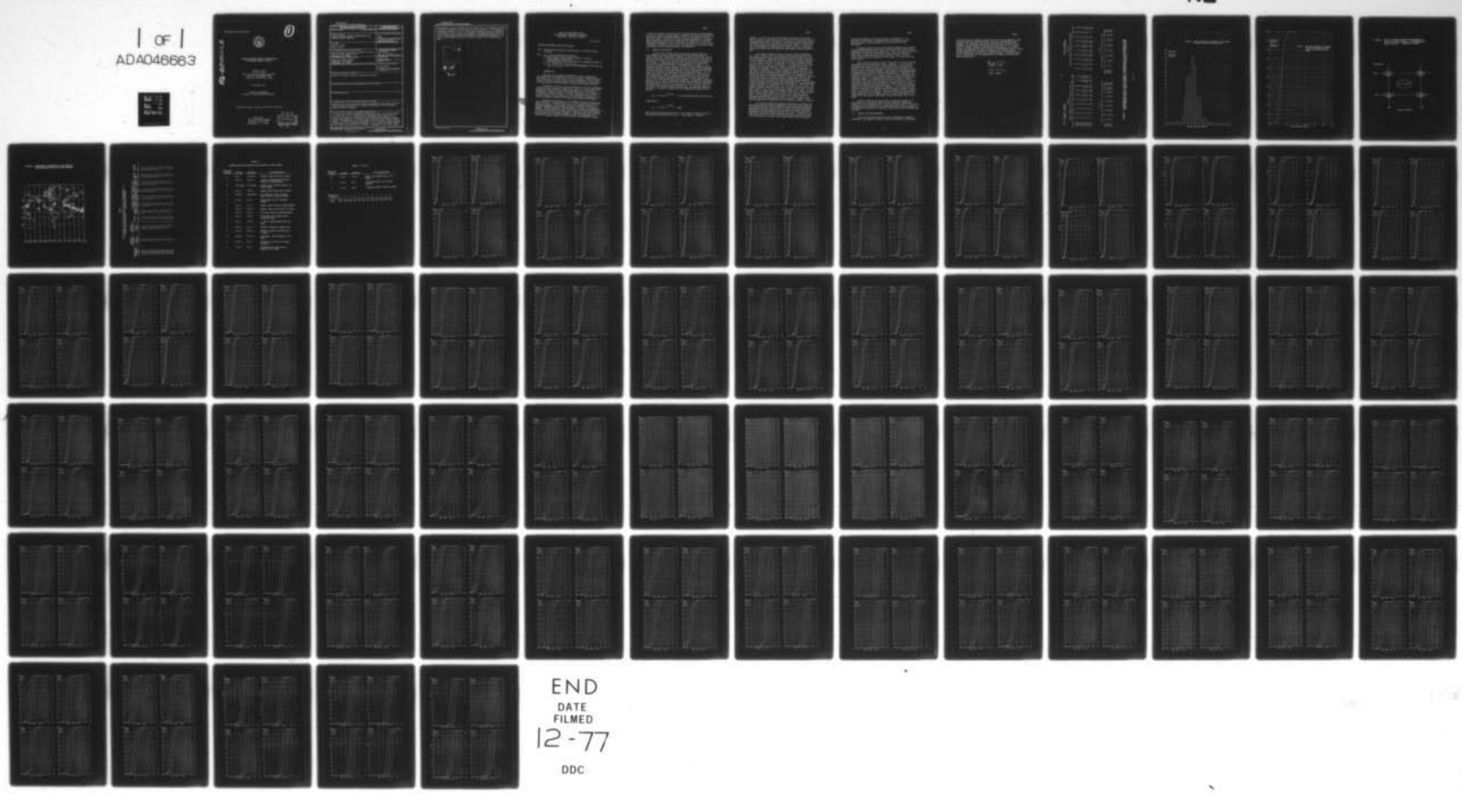
AD-A046 663 NAVAL AIR DEVELOPMENT CENTER WARMINSTER PA AERO-ELECT--ETC F/G 4/2
MONTHLY ABSOLUTE HUMIDITY PROBABILITIES FOR SELECTED MARINE LOC--ETC(U)
DEC 72 G B LEVIN, P M MOSER

UNCLASSIFIED NADC-20203-GBL/PMM NL

1 OF 1
AD A046663



END
DATE
FILMED
12-77
DDC

TECH MEMO NADC-20203:GBL/PMM

AD-A046663

①

MONTHLY ABSOLUTE HUMIDITY PROBABILITIES FOR SELECTED MARINE LOCATIONS

Gerald B. Levin
Paul M. Moser
Aero Electronic Technology Department
NAVAL AIR DEVELOPMENT CENTER
Warminster, Pennsylvania 18974

28 December 1972

TECHNICAL MEMORANDUM
AIRTASK NO. A3605333/202B/2F00343604

Approved for public release; distribution unlimited

Prepared for
NAVAL AIR SYSTEMS COMMAND
Department of the Navy
Washington, D. C. 20360

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (*When Data Entered*)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (*and Subtitle*) MONTHLY ABSOLUTE HUMIDITY PROBABILITIES FOR SELECTED MARINE LOCATIONS	5. TYPE OF REPORT & PERIOD COVERED Phase
	6. PERFORMING ORG. REPORT NUMBER NADC-20203:GBL/PMM
7. AUTHOR(s) Gerald B. Levin Paul M. Moser	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Aero Electronic Technology Department (Code 20) Naval Air Development Center Warminster, PA 18974	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS P.E. 62753N Proj. No. F32-343 Task Area No. WF32-343-604
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Air Systems Command Department of the Navy Washington, DC 20360	12. REPORT DATE 28 Dec 1972
	13. NUMBER OF PAGES 70
14. MONITORING AGENCY NAME & ADDRESS (*if different from Controlling Office*)	15. SECURITY CLASS. (*of this report*) Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (*of this Report*)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (*of the abstract entered in Block 20, if different from Report*)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (*Continue on reverse side if necessary and identify by block number*)

Humidity; water vapor; absolute humidity; atmospheric water vapor concentration; atmospheric transmission; infrared transmission; FLIR performance modeling; infrared imaging

20. ABSTRACT (*Continue on reverse side if necessary and identify by block number*)

In a previous technical memorandum "Mathematical Model of FLIR Performance" of 19 Oct 1972, a set of equations was developed which permits one to calculate acquisition, classification and identification ranges for ship targets when viewed by an airborne forward looking infrared (FLIR) imaging device. In performing such calculations, one of the crucial factors is the attenuation by the intervening atmosphere of the infrared radiation emitted by the target and received by the sensor. Atmospheric water vapor, whose

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

S/N 0102-LF-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (*When Data Entered*)

concentration is quite variable over time and place, is a principal absorber of infrared radiation over the spectral range of interest. This technical memorandum provides, in the form of graphs, cumulative percent frequencies of occurrence of the various concentrations of atmospheric water vapor for each of nineteen maritime sites throughout the northern hemisphere for each of the twelve months of the year to serve as inputs to the mathematical model.

NAVAL AIR DEVELOPMENT CENTER
AERO ELECTRONIC TECHNOLOGY DEPARTMENT
WARMINSTER, PENNSYLVANIA 18974

28 Dec 1972

TECHNICAL MEMORANDUM NADC-20203:GBL/PMM

Subj: Monthly absolute humidity probabilities for selected marine locations

Ref: (a) AIRTASK A360360C/001B/3F32343604
(b) Naval Weather Service Command Summary of Synoptic Meteorological Observations
(c) NAVAIRDEVCEN Tech Memo NADC-20203:PMM, Mathematical Model of FLIR Performance of 19 Oct 1972
(d) R. D. Hudson, Jr. Infrared System Engineering, John Wiley and Sons, Inc. (1962)

I. INTRODUCTION

Reference (a) assigned NAVAIRDEVCEN the task of performing operational and system analyses and state-of-the-art technology surveys and projections as a first effort in the development of FLIR (forward looking infrared) equipments which would be affordable in large quantities and optimized for the missions of single-place attack aircraft.

One phase of this task is the calculation of the FLIR performance characteristics (resolution, sensitivity, field of view and frame rate) necessary to meet operational range requirements as a function of atmospheric conditions, aircraft altitude and target size, orientation, and effective thermal contrast. In these calculations, one of the crucial factors is the attenuation by the intervening atmosphere of the infrared radiation emitted by the target and received by the sensor.

Although the composition of the atmosphere is quite constant with regard to most of its constituents, it is quite variable over time and place with respect to water vapor, which is a principal absorber of infrared radiation over the spectral range of interest (3 to 14 micrometers). Numerous studies of the transmission of infrared radiation as a function of the quantity of water vapor in the path have been reported in the literature and several methods of computation have been published which enable one to calculate atmospheric spectral transmission as a function of absolute humidity and path length. Unfortunately, there is

a dearth (or perhaps a complete lack) of statistical data giving probabilities of occurrence of given values of absolute humidity and probabilities that given values of absolute humidity will not be exceeded in certain times and places. The purpose of this technical memorandum is to provide marine weather statistics in a format that will enable one to determine the absolute humidity for which a FLIR must be designed if it is not to be prevented by atmospheric water vapor from achieving its operational range requirements to any preselected degree of probability.

II. METHOD OF CALCULATION

Reference (b) provides monthly statistical weather data for a large number of maritime sites throughout the world based largely on reports from ships. The primary period of record for these data, during which the most recent 80% of the observations were made, is typically of the order of 20 years: the overall periods of record range from about 60 to 110 years. A representative page from reference (b), which gives data for the Boston area in May, is reproduced here as figure 1. Of particular interest in this figure is "table 13" which gives the percent frequency that the relative humidity fell within each of eight intervals of relative humidity while simultaneously the air temperature fell within each of 12 intervals of temperature over the recording period. If one takes the values of relative humidity and temperature at the center of each respective interval as being representative of the whole interval, one can then compute a representative value of absolute humidity for each of the 96 two-dimensional relative humidity - temperature intervals. Reference (c), in which a convenient formula was developed for performing such calculations, states that if H_r is the relative humidity expressed in decimal form, T_A is the air temperature in °C at sea level, and e is the base of the Napierian system of logarithms, the absolute humidity at sea level H_o is given to within $\pm 3.6\%$ for temperatures between 0°C and 35°C by

$$H_o = 0.93\, H_r\, e^{0.06\, T_A} \quad \text{cm of precipitable water vapor per nmi.}$$

Alternatively,

$$H_o = 5.02\, H_r\, e^{0.06\, T_A} \quad \text{gm/m}^3.$$

These calculations were carried out for the example of Boston in May and the results are summarized in table I. These values of absolute

humidity, in conjunction with the percent frequencies of occurrence given in figure 1, were then used to construct the histogram of figure 2. The cumulative percent frequencies of occurrence of given quantities of atmospheric water vapor concentration were then obtained by integrating over the histogram to obtain the curve shown in figure 3. This curve may be interpreted as representing the probability that the absolute humidity in Boston will not exceed any given amount during the month of May.

The foregoing approach suffers from two avoidable weaknesses. The first of these is that the absolute humidity calculated from the mean temperature and mean relative humidity associated with any given relative humidity - temperature interval does not correspond exactly to the mean absolute humidity in that interval because absolute humidity is not a linear function of temperature. The second weakness of this approach is that it gives no indication of the magnitude of the uncertainty in the computed results. Because of the way the data are presented in reference (b), there is an uncertainty in temperature of $\pm 2F°$ and an uncertainty in relative humidity of (typically) $\pm 5\%$. The uncertainty in the computed values of absolute humidity is larger than either of these taken separately because there is a possibility that the highest values of relative humidity (in any given interval) occurred at the same times as the highest values of temperature (in the same interval) and that the lowest relative humidities and temperatures (within any given interval) also occurred simultaneously. The foregoing can be illustrated by an example taken from figure 1. Consider the most probable interval, for which $45°F \leq T_A \leq 49°F$ and $90\% \leq H_r \leq 100\%$. The highest possible absolute humidity that could fall within this interval, which occurs if $T_A = 49°F = 9.4°C$ and $H_r = 100\%$, is 8.8 gm/m^3. On the other hand, the lowest possible absolute humidity that could fall within this interval, which occurs if $T_A = 45°F = 7.2°C$ and $H_r = 90\%$, is 7.0 gm/m^3. The absolute humidity for this interval with its maximum uncertainty is therefore 7.9 ± 0.9 gm/m^3. In a similar manner, the absolute humidities corresponding to the other two "corners" of the interval were also calculated and all four values are given in figure 4.

To present the cumulative percent frequencies of occurrence of the various concentrations of atmospheric water vapor along with their maximum uncertainties it was decided to perform two absolute humidity computations for each interval: one for which the highest temperature and highest relative humidity were used and one for which the lowest temperature and lowest relative humidity were used. Accordingly, two curves were computed for each selected geographical location for each of the 12 months of the year; one of these curves tends to overstate

the absolute humidity and the other tends to understate it. In addition, a third curve, representing the locus of mean values of these extremes of absolute humidity was also plotted for each site-month.

Nineteen maritime sites in the northern hemisphere were selected as being representative of the types of climate in which future naval operations might be expected to take place. Table II lists and describes these sites in addition to providing a two-letter code system for identifying by site-month each of the graphs to follow. Figure 5 shows the geographical distribution of the sites on a small scale map of the world.

Data in the form shown in figure 1 were used for each of the 228 site-months for which computations were performed. In the interest of providing greater accuracy over a larger temperature range than that afforded by the simple equation used earlier in this technical memorandum, values of absolute humidity corresponding to the various values of temperature and relative humidity were obtained by interpolating and extrapolating data given in a table in reference (d). Cumulative frequencies of occurrence of the various values of absolute humidity were computed by means of a Hewlett-Packard 9100A Calculator and plotted as individual points by a companion 9125A Calculator Plotter. Smooth, eye-fitted curves were drawn through each set of points and then curves representing the means of the extremes of absolute humidity at each cumulative frequency level were hand drawn. These curves are included herein on the 228 graphs labeled AA through SL. On all the graphs the cumulative frequency of occurrence is plotted as the ordinate, ranging from 0 to 100% while the absolute humidity expressed in grams per cubic meter is plotted as the abscissa. For most of the graphs the abscissa values range from 0 to 35 gm/m^3; however, for those site-months which exhibit very high absolute humidities, this scale ranges from 10 to 45 gm/m^3.

Because reference (b) gives percent frequencies rounded off to the nearest 0.1%, the maximum values of the cumulative frequencies usually do not equal exactly 100%. There may be some bias in the original data because of a preference of the reporting ships to avoid extremes of bad weather and because of a preference to work during the day rather than at night.

III. CREDITS AND ACKNOWLEDGEMENTS

The task of locating sources of data, establishing a method of computation, programming the Hewlett-Packard calculator and performing

the majority of the computations was carried out by Mr. Gerald B. Levin, a Temple University graduate student, who was a NAVAIRDEVCEN summer employee. The remaining computations were performed by Miss Nancy E. MacMeekin and the drawing of the 684 curves was the work of Mr. Glenn Jadney, a student trainee from Northeastern University. The authors gratefully acknowledge the contributions of Miss MacMeekin and Mr. Jadney. Special appreciation is extended to personnel of the Naval Weather Service Command for providing the relative humidity - temperature data and for contributing to its understanding in a number of lengthy telephone conversations.

Gerald B. Levin

GERALD B. LEVIN

Paul M. Moser

PAUL M. MOSER

PERIOD: (PRIMARY) 1951-1968
(OVER-ALL) 1864-1968

AREA 004 BOSTON
42N-COAST 66W-COAST

TABLE 13

PERCENT FREQUENCY OF RELATIVE HUMIDITY BY TEMP

TEMP F	0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100	TOTAL OBS	PCT FREQ
85/89	.0	.0	.1	.0	.0	.0	.0	.0	1	.1
80/84	.0	.0	.1	.1	.0	.0	.0	.0	2	.1
75/79	.0	.0	.1	.0	.0	.0	.0	.0	1	.1
70/74	.1	.1	.0	.0	.1	.0	.0	.0	3	.2
65/69	.1	.1	.1	.3	.2	.2	.0	.0	17	1.0
60/64	.0	.0	.2	.3	.5	.4	.3	.1	32	1.8
55/59	.0	.0	.2	.4	1.0	1.7	1.6	1.6	112	6.5
50/54	.0	.0	.1	.3	1.2	3.3	7.0	7.1	330	19.0
45/49	.1	.1	.2	.5	1.6	5.6	13.7	16.0	656	37.8
40/44	.0	.2	.1	.1	1.6	4.1	10.3	13.4	517	29.8
35/39	.0	.0	.0	.1	.1	.2	.9	2.3	63	3.6
30/34	.0	.0	.0	.1	.0	.0	.0	.0	1	.1
TOTAL	5	8	18	38	105	272	585	704	1735	100.0
PCT	.3	.5	1.0	2.2	6.1	15.7	33.7	40.6		

TABLE 14

PERCENT FREQUENCY OF WIND DIRECTION BY TEMP

TEMP F	N	NE	E	SE	S	SW	W	NW	VAR	CALM
85/89	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
80/84	.1	.0	.0	.0	.1	.0	.0	.0	.0	.0
75/79	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
70/74	.0	.0	.0	.0	.1	.0	.1	.1	.0	.0
65/69	.0	.0	.0	.1	.2	.3	.2	.2	.0	.0
60/64	.1	.1	.2	.1	.7	.3	.2	.1	.0	.0
55/59	.4	.4	.7	.5	2.2	1.0	.6	.5	.0	.1
50/54	1.1	1.9	1.4	1.8	4.3	3.8	2.9	.9	.0	.9
45/49	1.8	2.9	3.3	3.8	7.7	8.1	5.8	3.1	.1	1.2
40/44	2.7	2.1	2.4	3.1	4.5	5.7	4.6	3.7	.0	1.2
35/39	.4	.3	.5	.3	.7	.3	.7	.4	.0	.0
30/34	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
TOTAL	114	133	146	167	356	340	260	158	1	60
PCT	6.6	7.7	8.4	9.6	20.5	19.6	15.0	9.1	.1	3.5

TABLE 15

MEANS, EXTREMES AND PERCENTILES OF TEMP (DEG F) BY HOUR

HOUR (GMT)	MAX	99%	95%	50%	5%	1%	MIN	MEAN	TOTAL OBS
00&03	76	61	55	46	39	36	33	46.5	605
06&09	64	57	54	46	39	38	36	46.5	497
12&15	79	63	58	47	40	37	34	46.2	771
18&21	85	70	62	48	40	38	34	49.5	804
TOT	85	66	57	45	38	36	33	47.3	2677

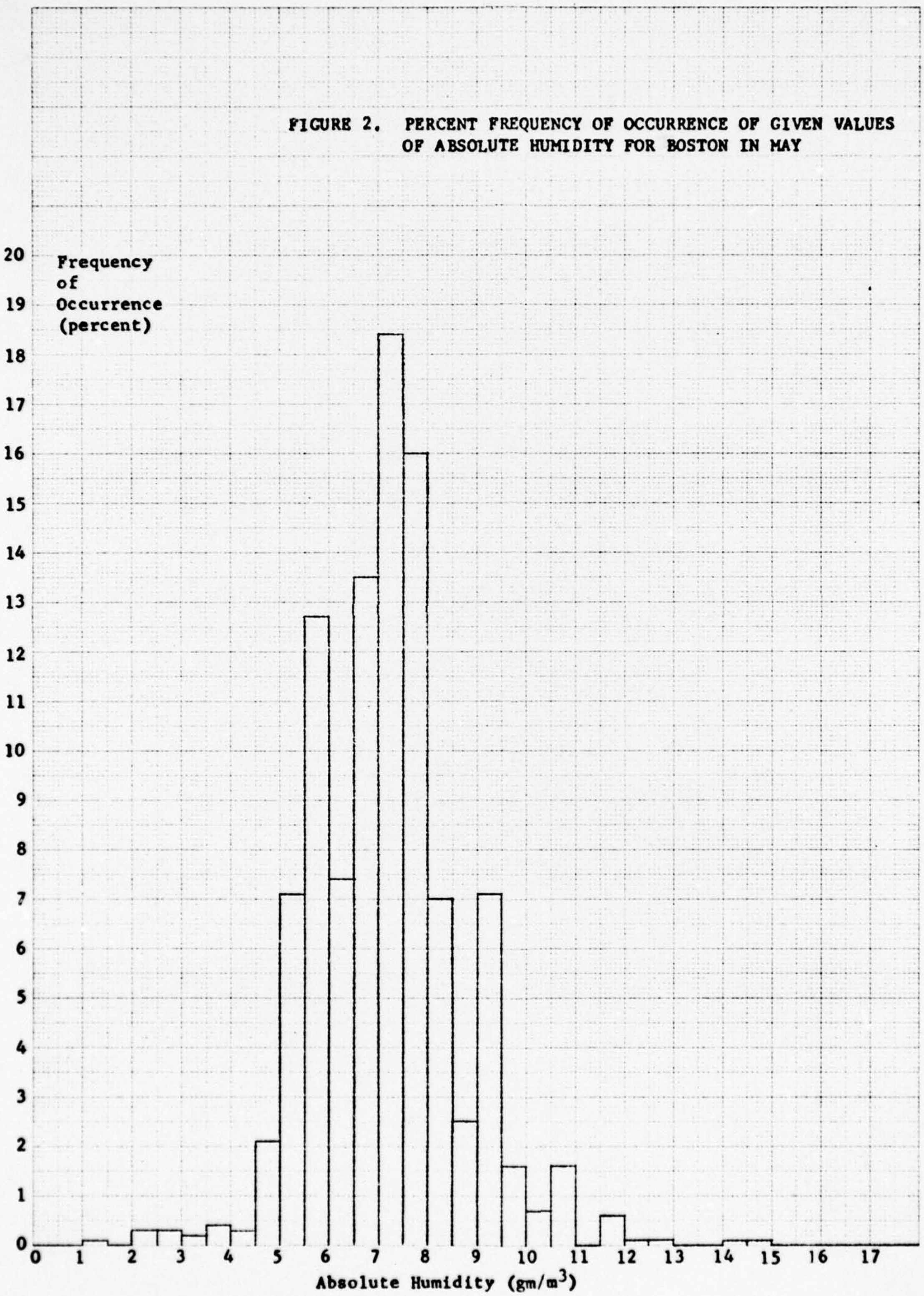
TABLE 16

PERCENT FREQUENCY OF RELATIVE HUMIDITY BY HOUR

HOUR (GMT)	0-29	30-59	60-69	70-79	80-89	90-100	MEAN	TOTAL OBS
00&03	.0	.2	1.2	3.0	8.8	9.8	87	401
06&09	.1	.2	.6	2.5	5.7	9.3	88	320
12&15	.0	.9	1.4	4.1	9.4	11.8	86	480
18&21	.2	2.5	2.8	6.1	9.9	9.5	81	540
TOT	5	64	105	274	589	704	85	1741

FIGURE 1. REPRESENTATIVE PAGE OF DATA FOR BOSTON, MASSACHUSETTS, IN MAY REPRODUCED FROM NAVAL WEATHER SERVICE COMMAND SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS

FIGURE 2. PERCENT FREQUENCY OF OCCURRENCE OF GIVEN VALUES OF ABSOLUTE HUMIDITY FOR BOSTON IN MAY



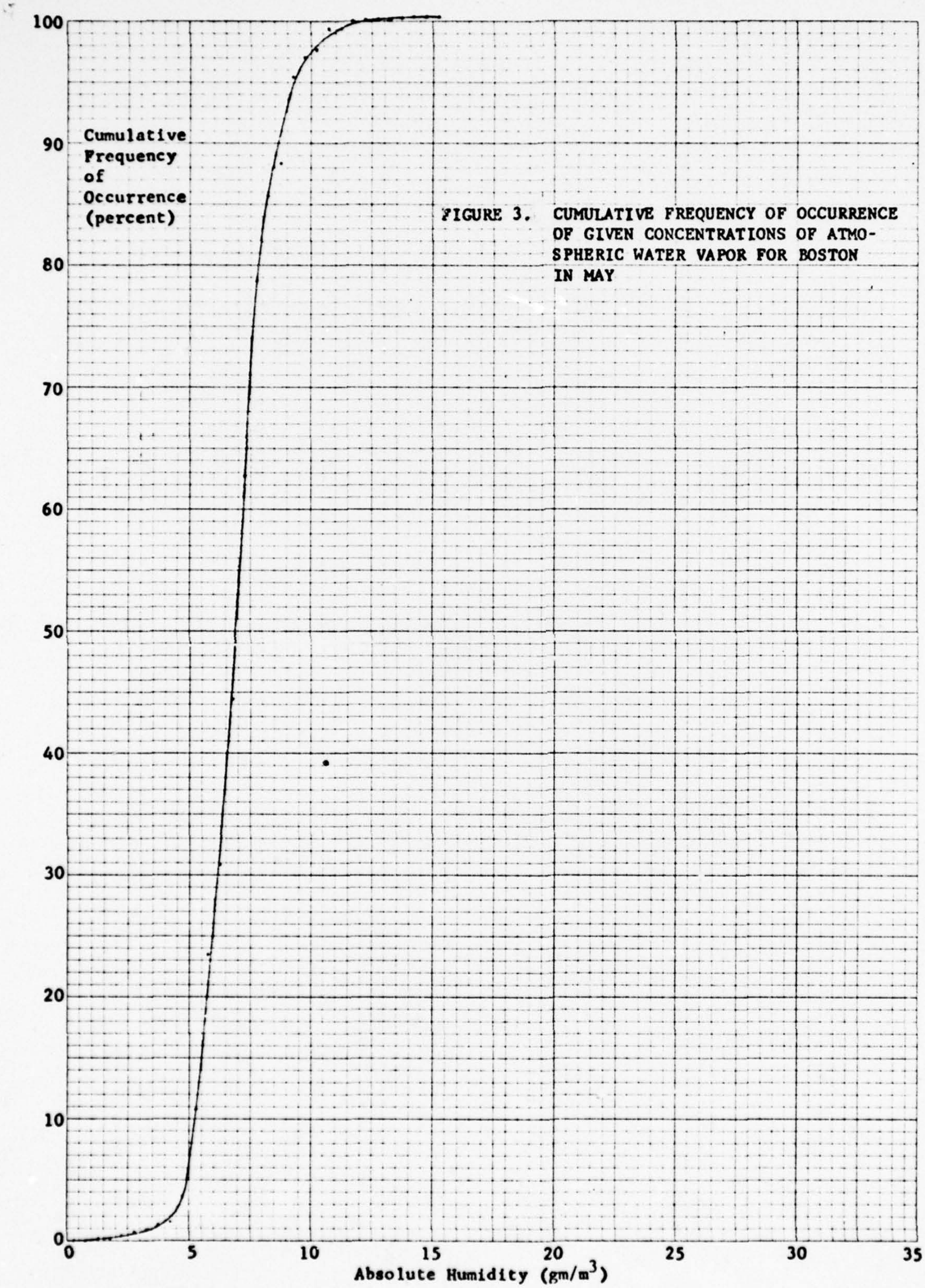


FIGURE 3. CUMULATIVE FREQUENCY OF OCCURRENCE OF GIVEN CONCENTRATIONS OF ATMOSPHERIC WATER VAPOR FOR BOSTON IN MAY

FIGURE 4. VALUES OF ABSOLUTE HUMIDITY CORRESPONDING TO EACH OF THE FOUR "CORNERS" OF A REPRESENTATIVE RELATIVE HUMIDITY - TEMPERATURE INTERVAL

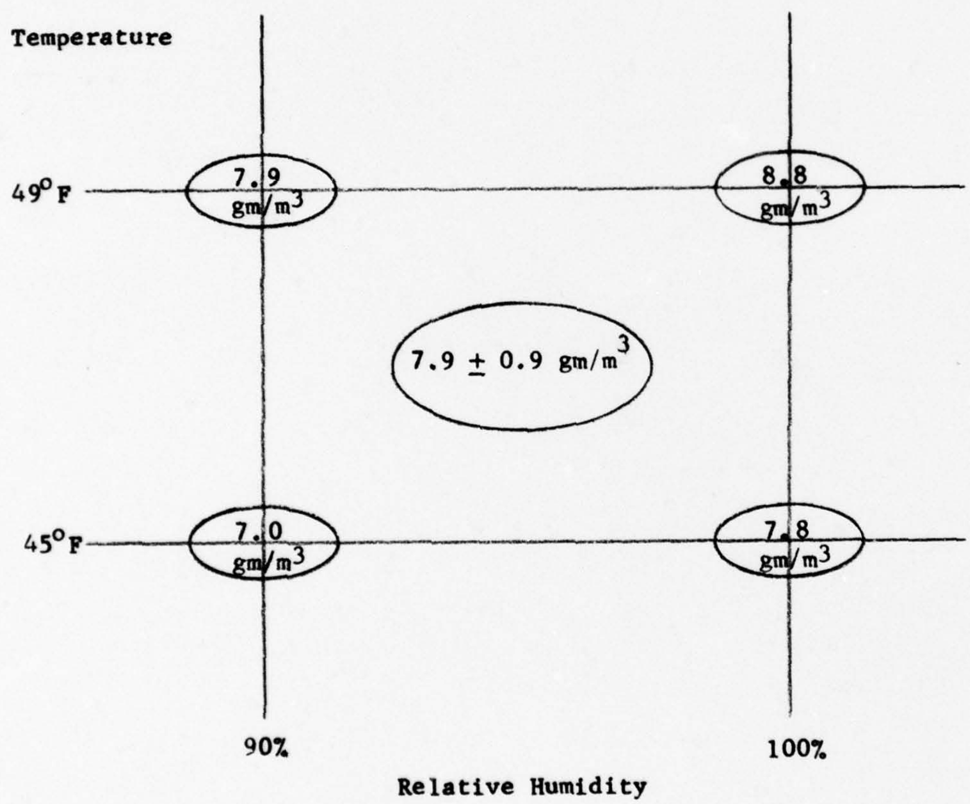


FIGURE 5. GEOGRAPHICAL DISTRIBUTION OF THE SITES FOR WHICH ABSOLUTE HUMIDITY DATA ARE PRESENTED

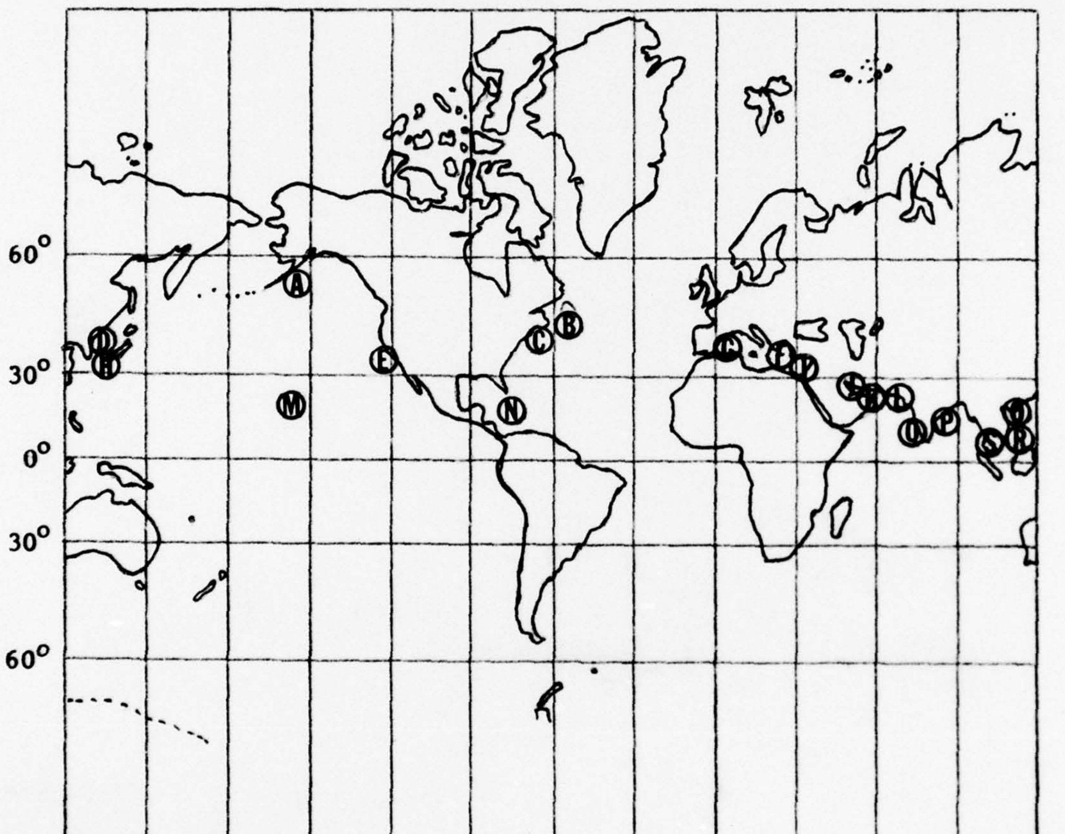


TABLE I

"MEAN" VALUES OF ABSOLUTE HUMIDITY (gm/m^3) CORRESPONDING TO VARIOUS RELATIVE HUMIDITY - TEMPERATURE INTERVALS

Temperature Interval (°F)	Average Temperature of Interval (°F)	Average Temperature of Interval (°C)	Relative Humidity Interval (%)							
			0-29	30-39	40-49	50-59	60-69	70-79	80-89	90-100
			Average Relative Humidity of Interval (%)							
			14.5	34.5	44.5	54.5	64.5	74.5	84.5	95
85/89	87	30.6	4.6	10.9	14.0	17.2	20.3	23.4	26.9	29.9
80/84	82	27.8	3.9	9.2	11.8	14.5	17.2	19.8	22.5	25.3
75/79	77	25.0	3.3	7.8	10.0	12.3	14.5	16.8	19.0	21.4
70/74	72	22.2	2.8	6.6	8.5	10.4	12.3	14.2	16.1	18.1
65/69	67	19.4	2.3	5.5	7.2	8.8	10.4	12.0	13.6	15.3
60/64	62	16.7	2.0	4.7	6.1	7.4	8.8	10.2	11.5	13.0
55/59	57	13.9	1.7	4.0	5.1	6.3	7.5	8.6	9.8	11.0
50/54	52	11.1	1.4	3.4	4.4	5.3	6.3	7.3	8.3	9.3
45/49	47	8.3	1.2	2.9	3.7	4.5	5.3	6.2	7.0	7.9
40/44	42	5.6	1.0	2.4	3.1	3.8	4.5	5.2	5.9	6.7
35/39	37	2.8	0.9	2.0	2.6	3.2	3.8	4.4	5.0	5.6
30/34	32	0	0.7	1.7	2.2	2.7	3.2	3.7	4.2	4.8

TABLE II

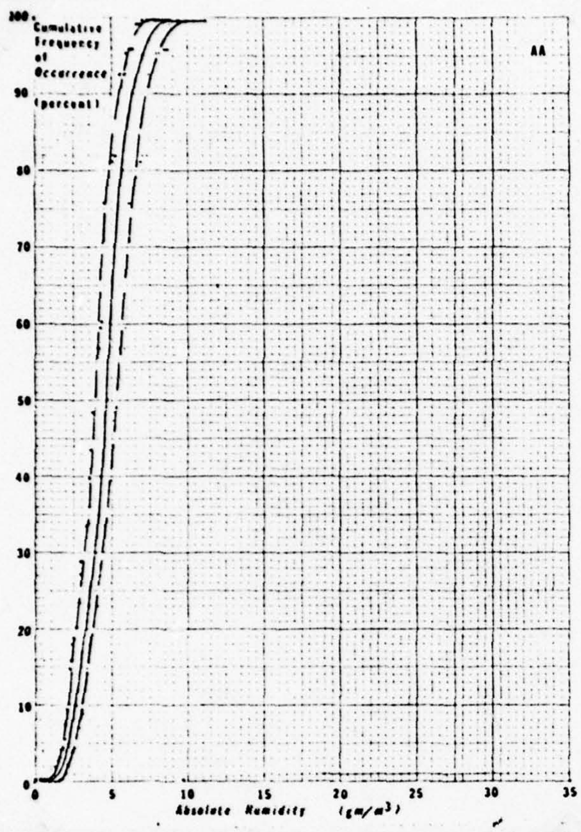
IDENTIFICATION OF SELECTED SITES AND MONTHS BY CODE SYMBOLS

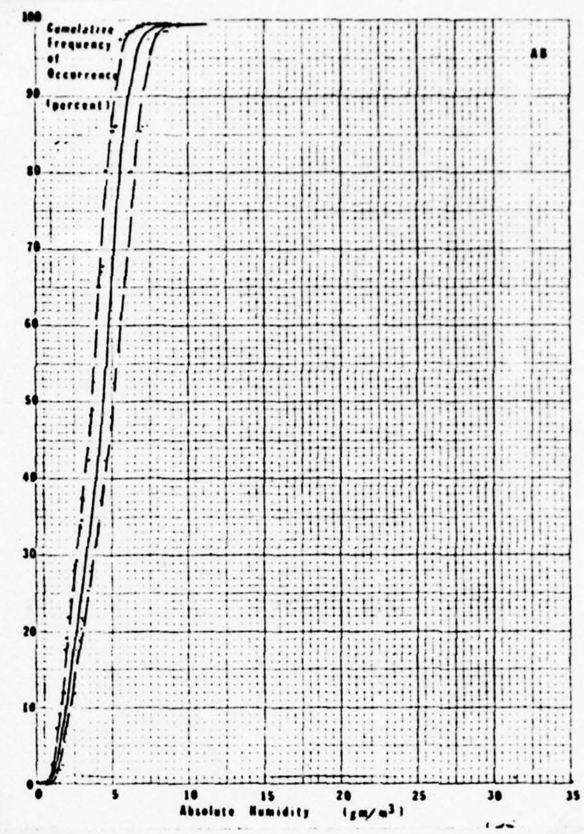
FIRST CODE LETTER	LATITUDE	LONGITUDE	SITE DESCRIPTION
A	56 N	151-157 W	Kodiak, Alaska (NE Pacific Ocean)
B	45-47 N	53-56 W	Argentia, Newfoundland (Atlantic Ocean SE of Newfoundland)
C	42 N-Coast	66 W-Coast	Boston, Mass. (Atlantic Ocean E of central Mass.)
D	39.6 N	129.0 E	Wonsan, North Korea (Sea of Japan)
E	36-38 N	Coast-126 W	San Francisco, Calif. (Pacific Ocean S and W of central Calif.)
F	37.9 N	25.1 E	South Aegean Sea (E of Athens, Greece)
G	36.0 N	3.4 W	Malaga, Spain (W end of Mediterranean)
H	35.8 N	133.6 E	Matsue, Japan (S end of Sea of Japan)
I	32.2 N	33.3 E	Port Said, Egypt (SE Mediterranean)
J	26.9 N	50.3 E	NW Persian Gulf (between Saudi Arabia and Iran)
K	25.1 N	57.8 E	N Gulf of Oman (between Iran and Oman)
L	23.0 N	67.7 E	Karachi, Pakistan (N Arabian Sea)
M	20.4 N	158.2 W	Hawaiian Leeward (Pacific Ocean S of Oahu)
N	18-20 N	74-76 W	Guantanamo, Cuba (Caribbean S of E Cuba)
O	17-22 N	110 E	S China Sea Area VII (E of North Vietnam)
P	17.8 N	85.3 E	Vishakhapatnam, India (Bay of Bengal E of S India)

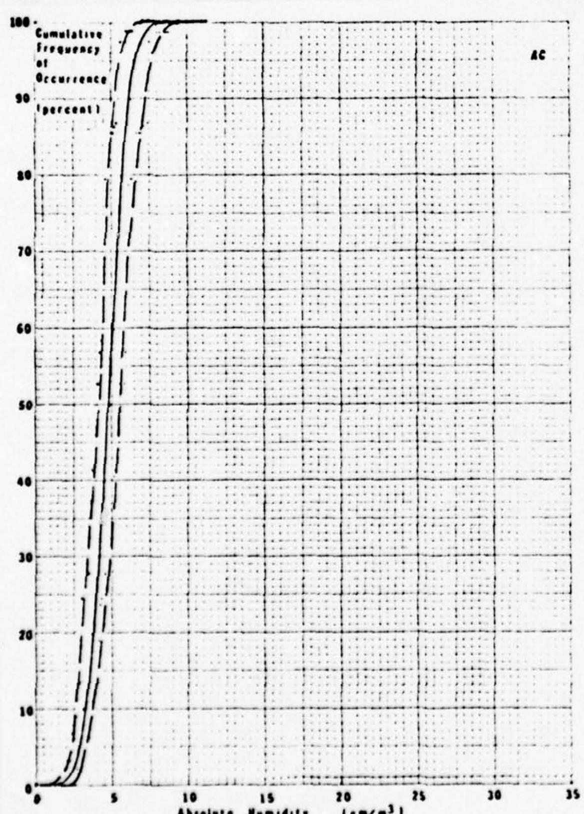
TABLE II (cont'd)

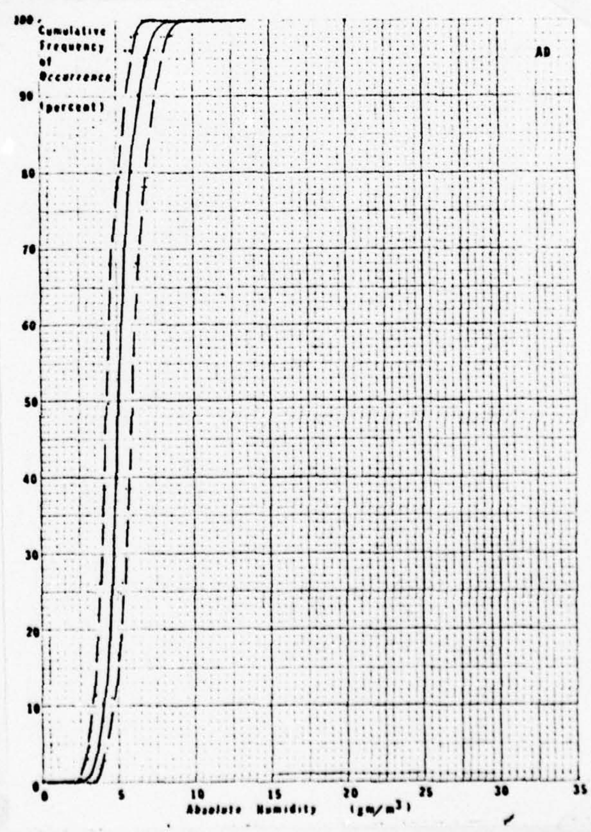
FIRST CODE LETTER	LATITUDE	LONGITUDE	SITE DESCRIPTION
Q	14.2 N	73.0 E	Panjim, Goa (Arabian Sea W of S India)
R	11-14 N	111 E	S China Sea Area I (E of South Vietnam)
S	7-11 N	102 E	S China Sea Area VI (Gulf of Siam)

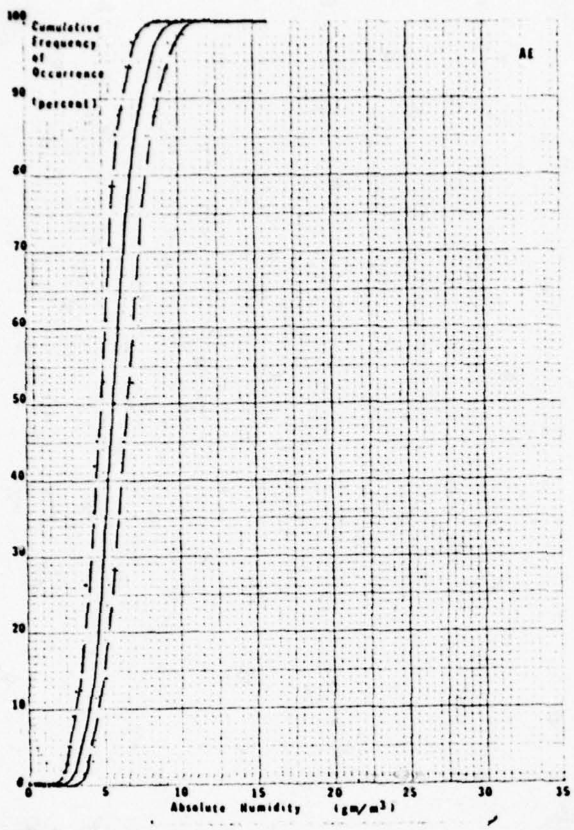
SECOND CODE LETTER	A	B	C	D	E	F	G	H	I	J	K	L
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

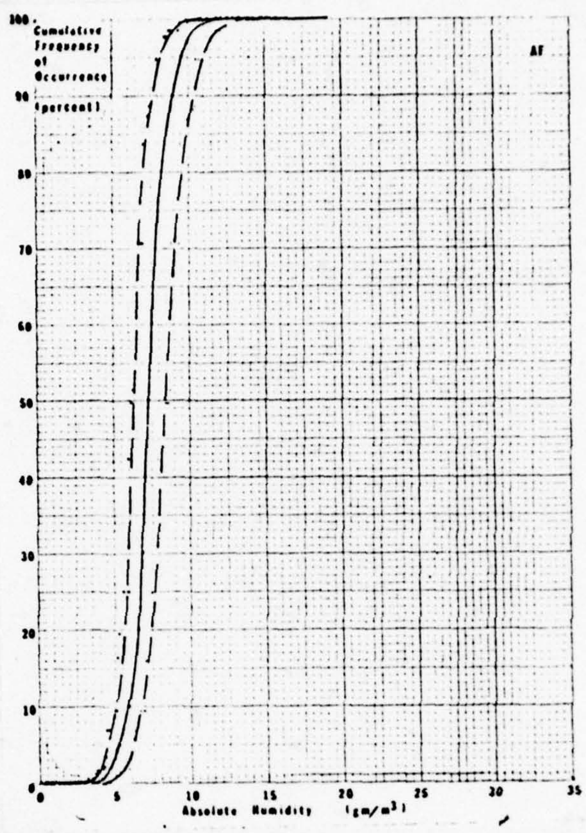

Cumulative Frequency of Occurrence (percent)
AA
Absolute Humidity (gm/m³)

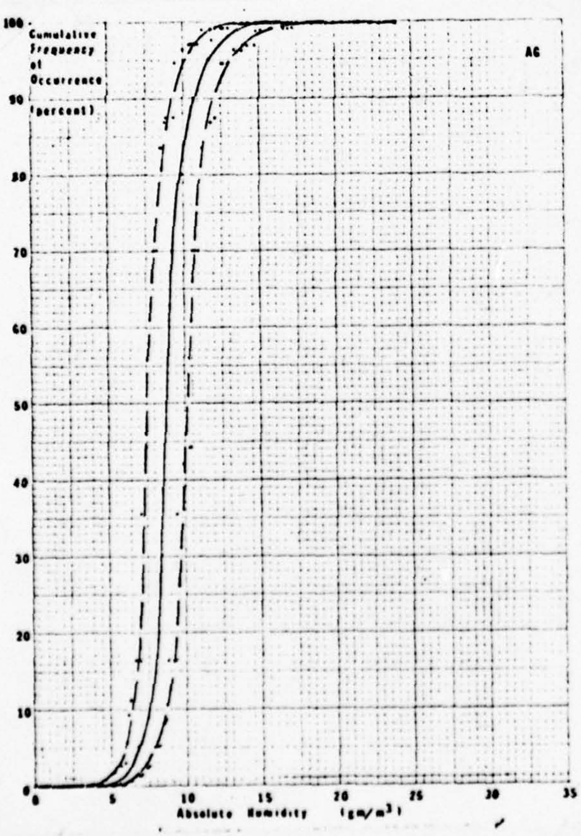

Cumulative Frequency of Occurrence (percent)
AB
Absolute Humidity (gm/m³)

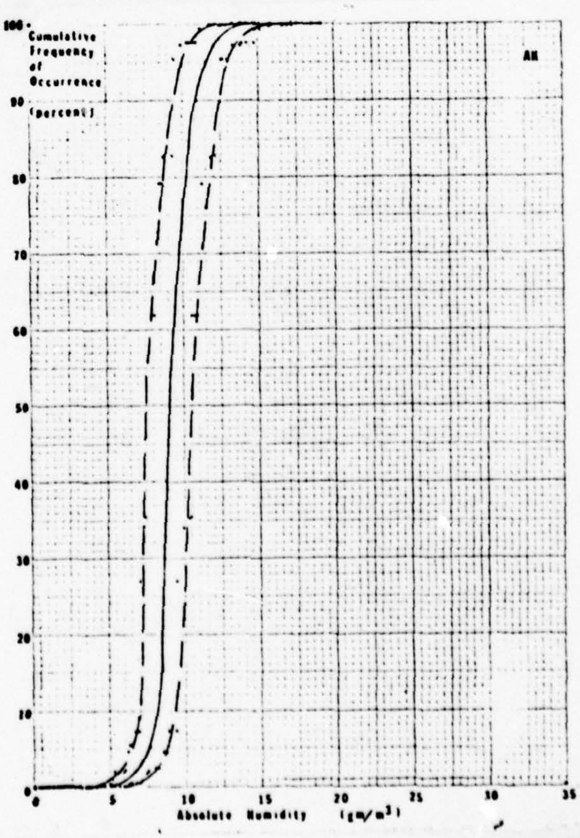

Cumulative Frequency of Occurrence (percent)
AC
Absolute Humidity (gm/m³)

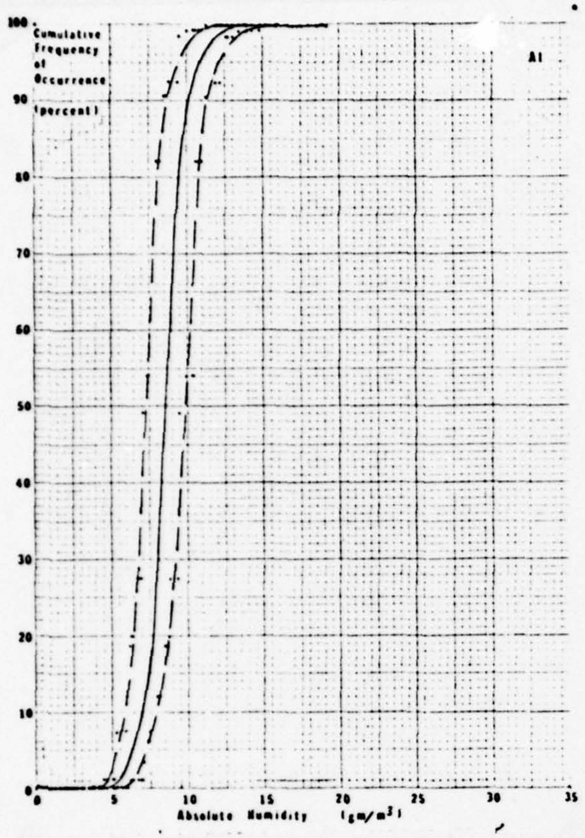

Cumulative Frequency of Occurrence (percent)
AD
Absolute Humidity (gm/m³)

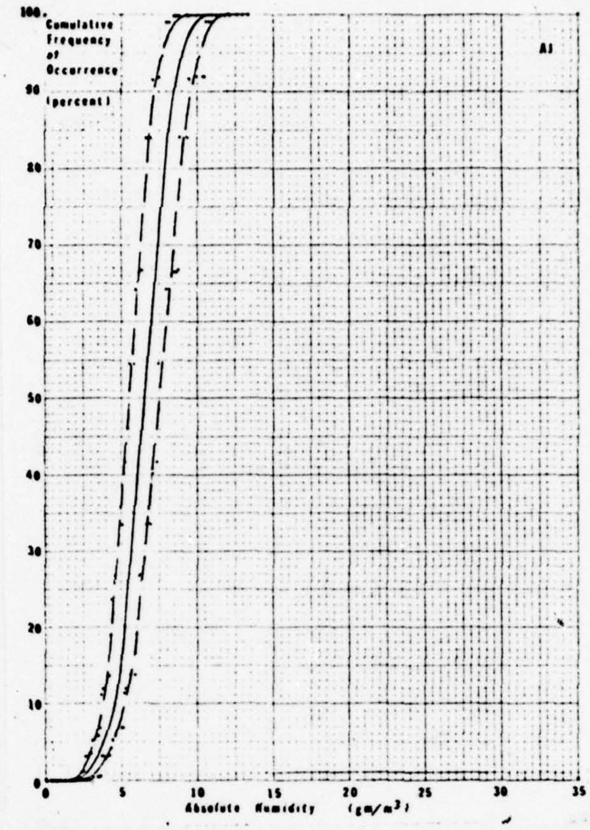

AE
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)

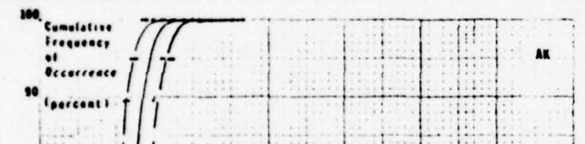

AF
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)


AG
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)

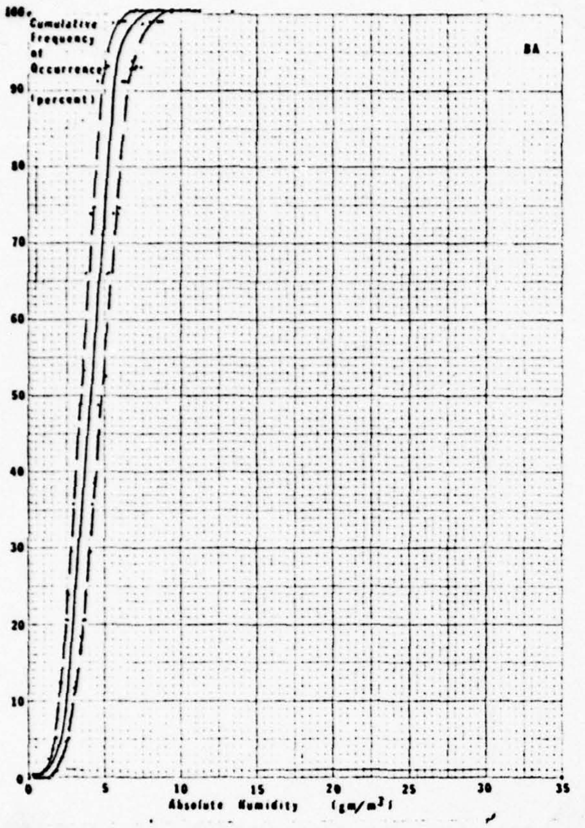

AH
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
AI
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

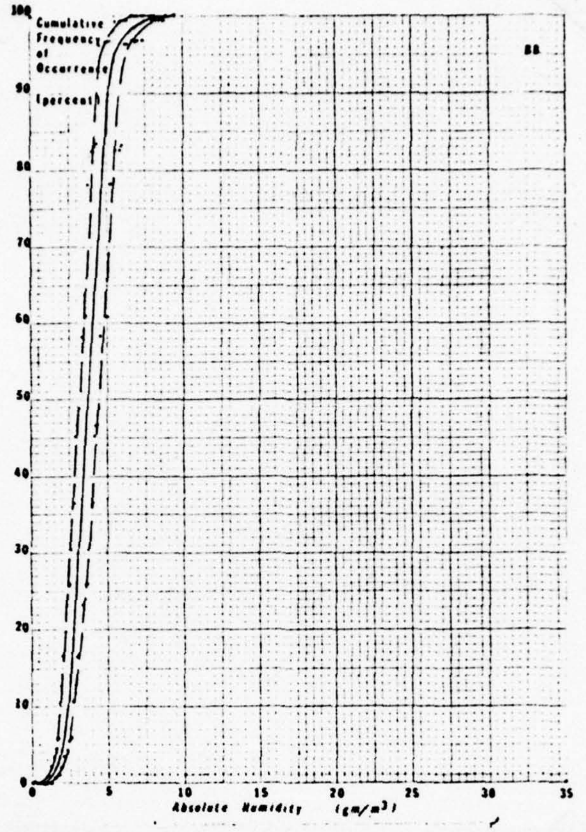

Cumulative Frequency of Occurrence (percent)
AJ
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)


Cumulative Frequency of Occurrence (percent)
AK
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

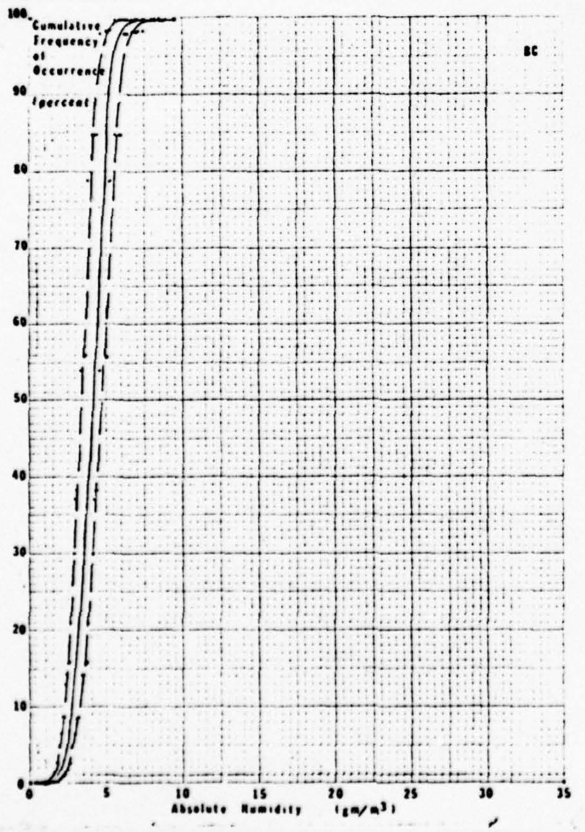

Cumulative Frequency of Occurrence (percent)
AL
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)



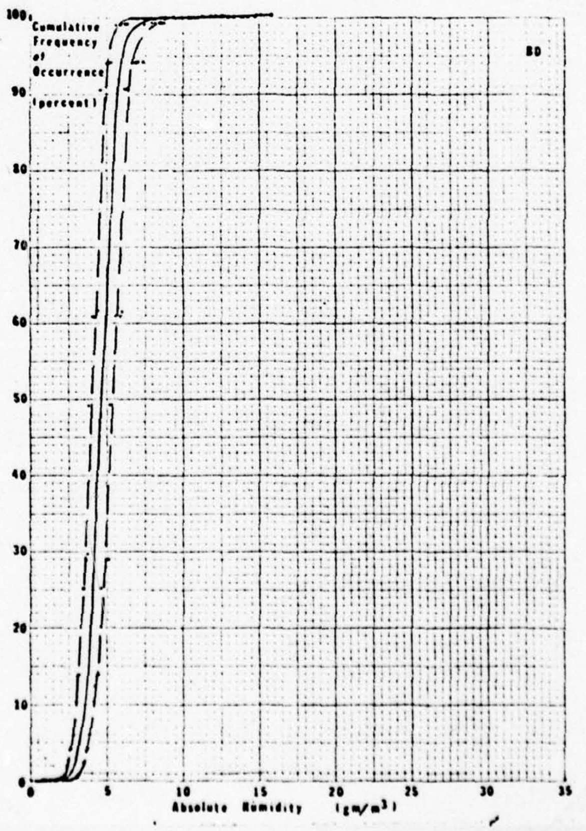
Cumulative
Frequency
of
Occurrence
(percent)
BA
0
10
20
30
40
50
60
70
80
90
100
5
15
25
35
Absolute Humidity (gm/m3)



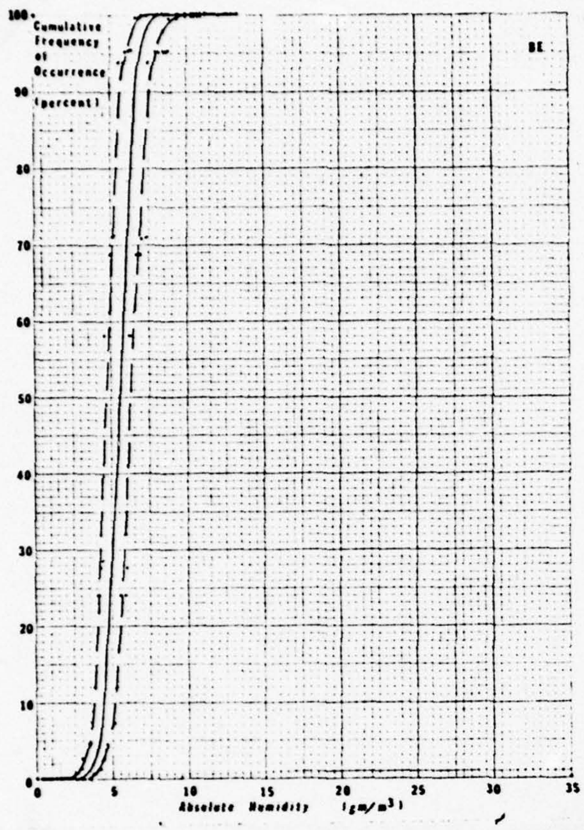
Cumulative
Frequency
of
Occurrence
(percent)
BB
0
10
20
30
40
50
60
70
80
90
100
5
15
25
35
Absolute Humidity (gm/m3)

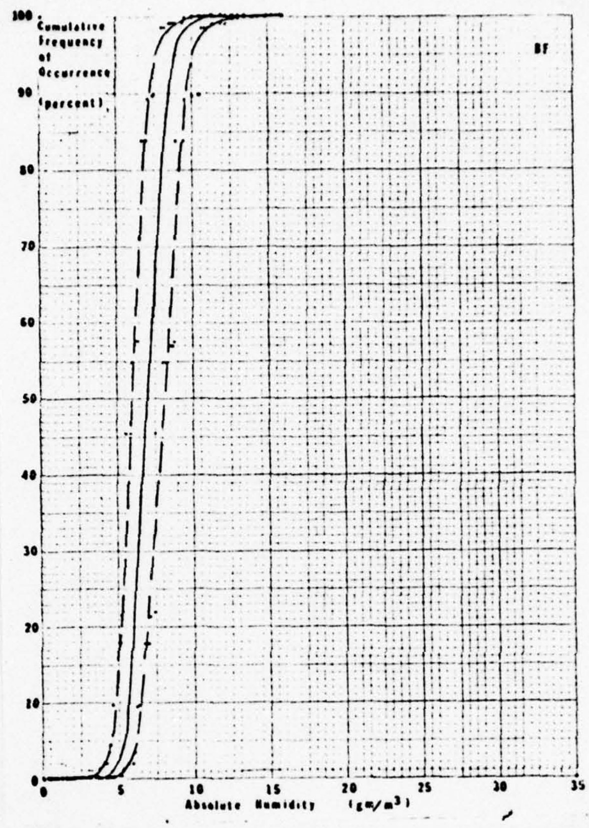


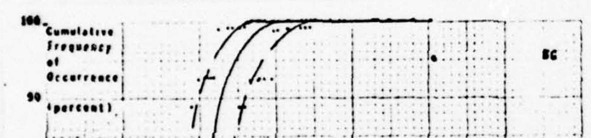
Cumulative
Frequency
of
Occurrence
(percent)
BC
0
10
20
30
40
50
60
70
80
90
100
5
15
25
35
Absolute Humidity (gm/m3)

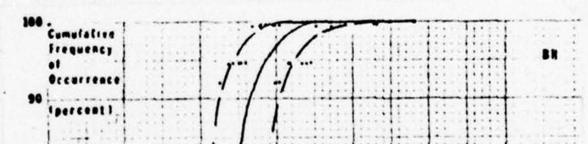


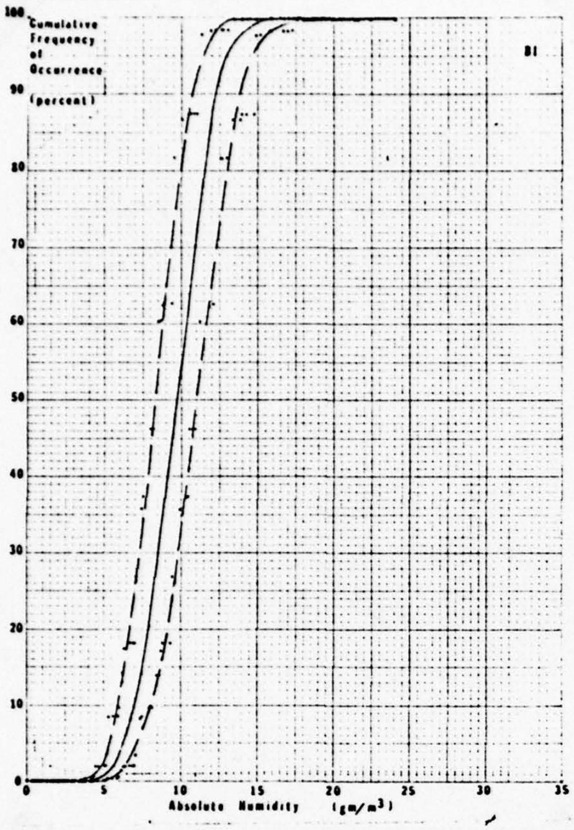
Cumulative
Frequency
of
Occurrence
(percent)
BD
0
10
20
30
40
50
60
70
80
90
100
5
15
25
35
Absolute Humidity (gm/m3)

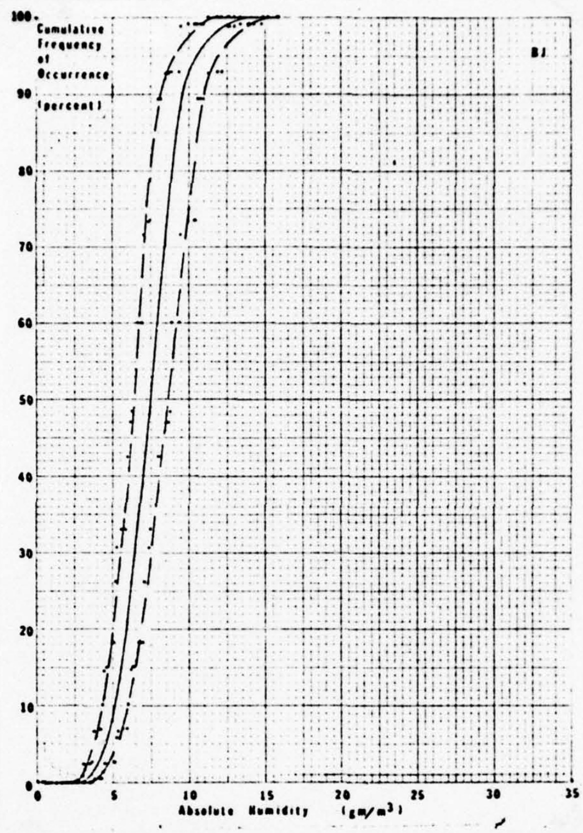

Cumulative Frequency of Occurrence (percent)
BE
Absolute Humidity (gm/m³)

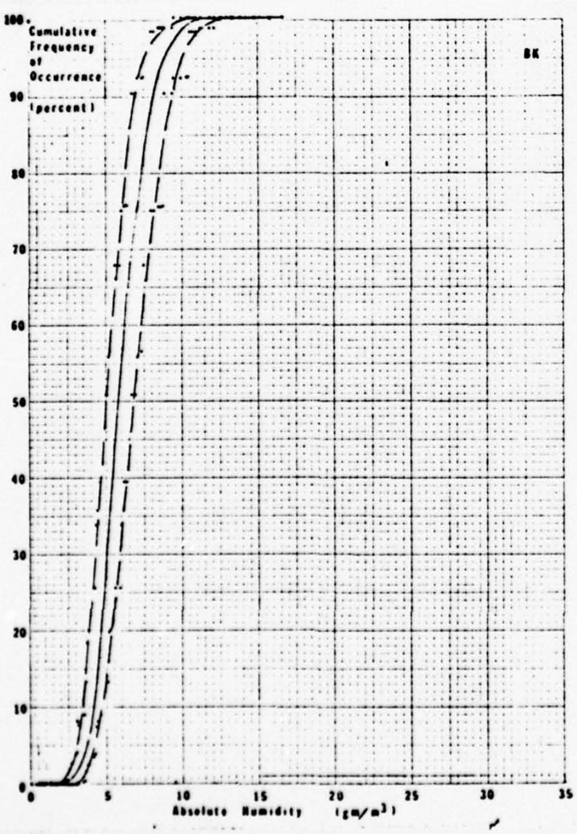

Cumulative Frequency of Occurrence (percent)
BF
Absolute Humidity (gm/m³)

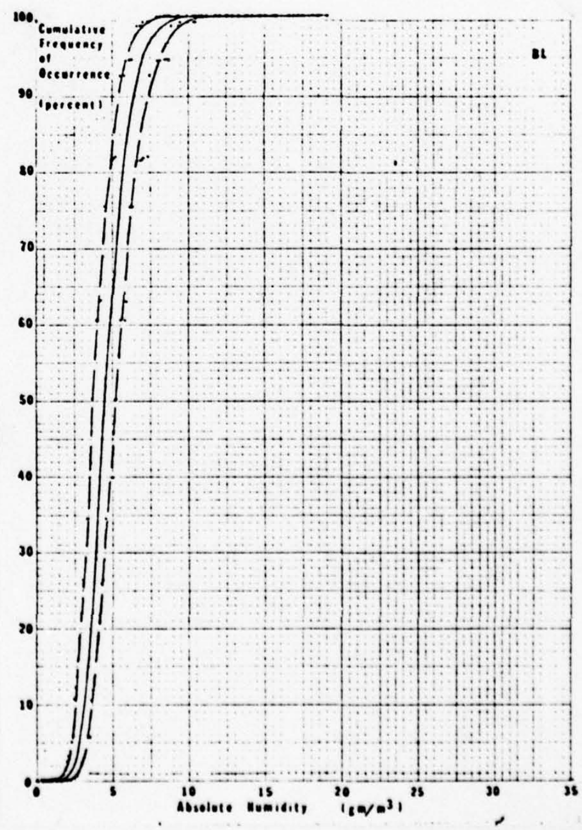

Cumulative Frequency of Occurrence (percent)
BG
Absolute Humidity (gm/m³)

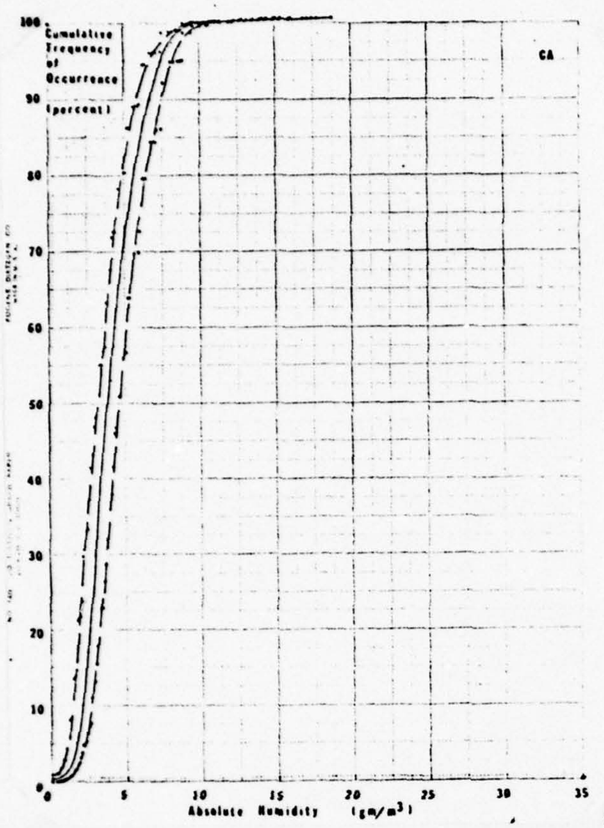

Cumulative Frequency of Occurrence (percent)
BH
Absolute Humidity (gm/m³)

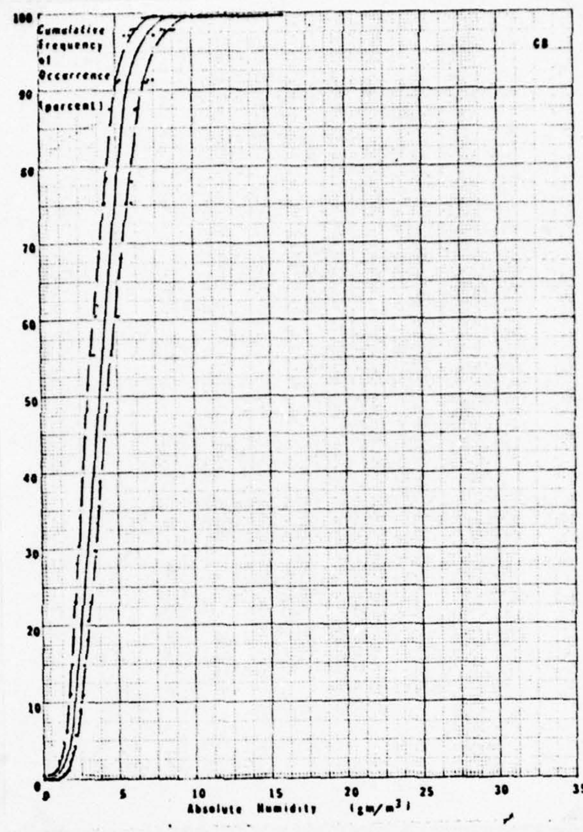

Cumulative Frequency of Occurrence (percent)
BI
Absolute Humidity (gm/m3)

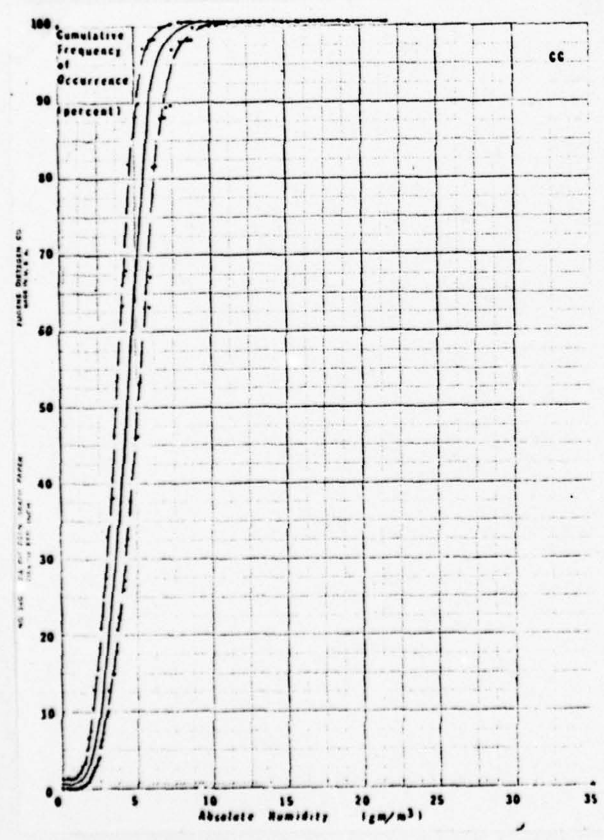

Cumulative Frequency of Occurrence (percent)
BJ
Absolute Humidity (gm/m3)

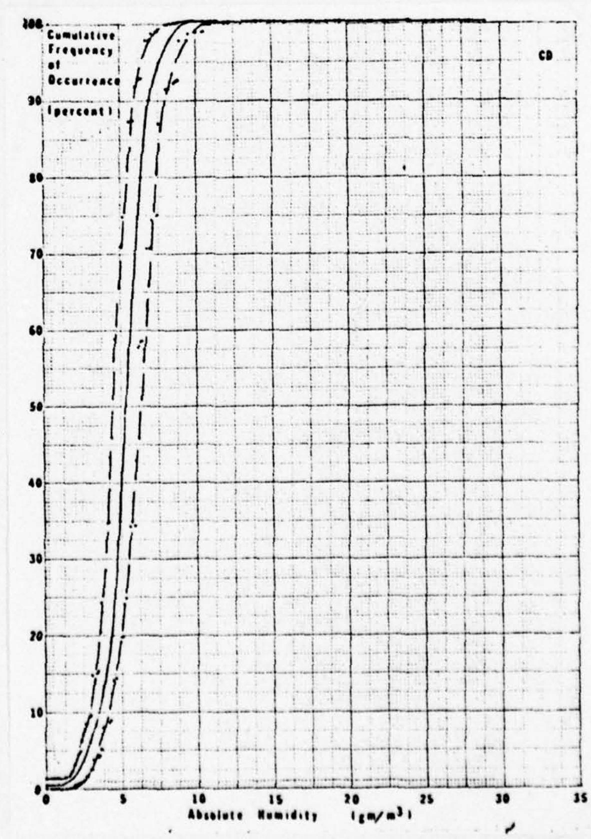

Cumulative Frequency of Occurrence (percent)
BK
Absolute Humidity (gm/m3)

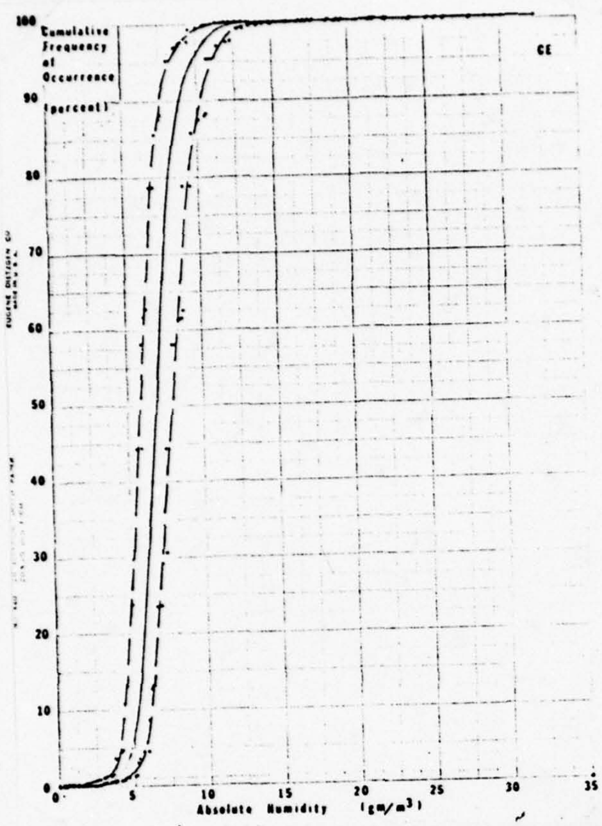

Cumulative Frequency of Occurrence (percent)
BL
Absolute Humidity (gm/m3)

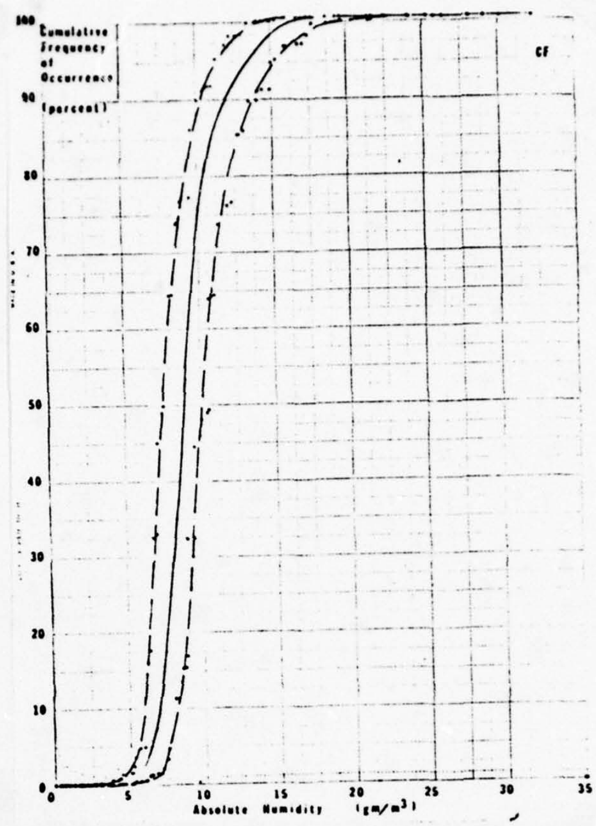

Cumulative Frequency of Occurrence (percent)
CA
Absolute Humidity (gm/m3)

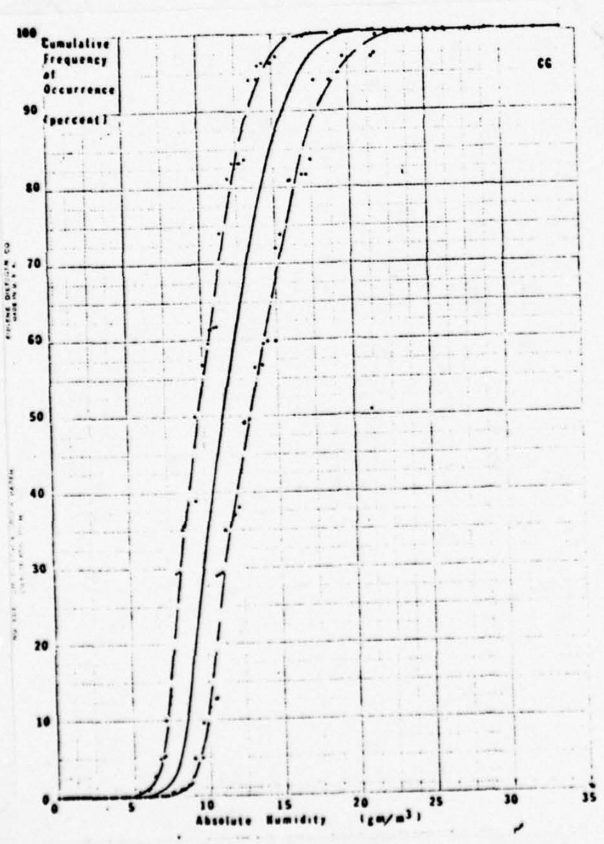

Cumulative Frequency of Occurrence (percent)
CB
Absolute Humidity (gm/m3)

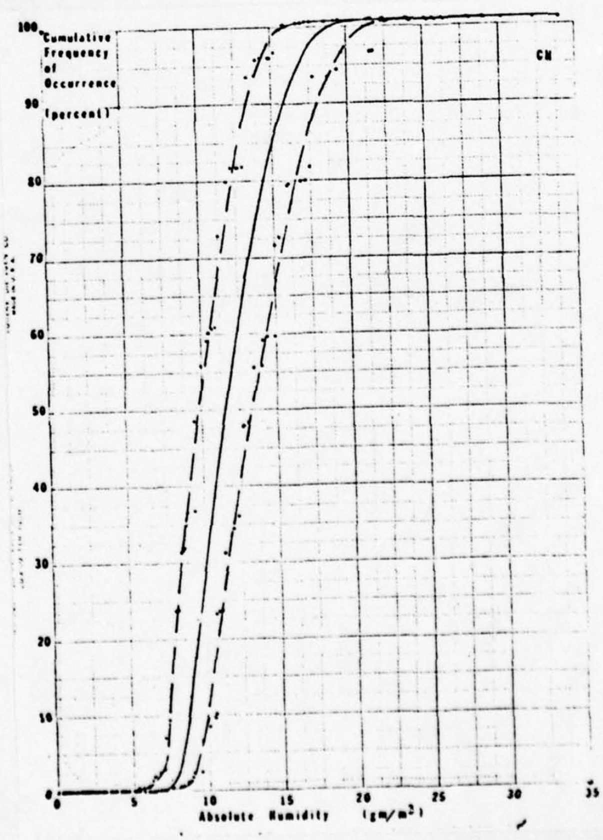

Cumulative Frequency of Occurrence (percent)
CC
Absolute Humidity (gm/m3)

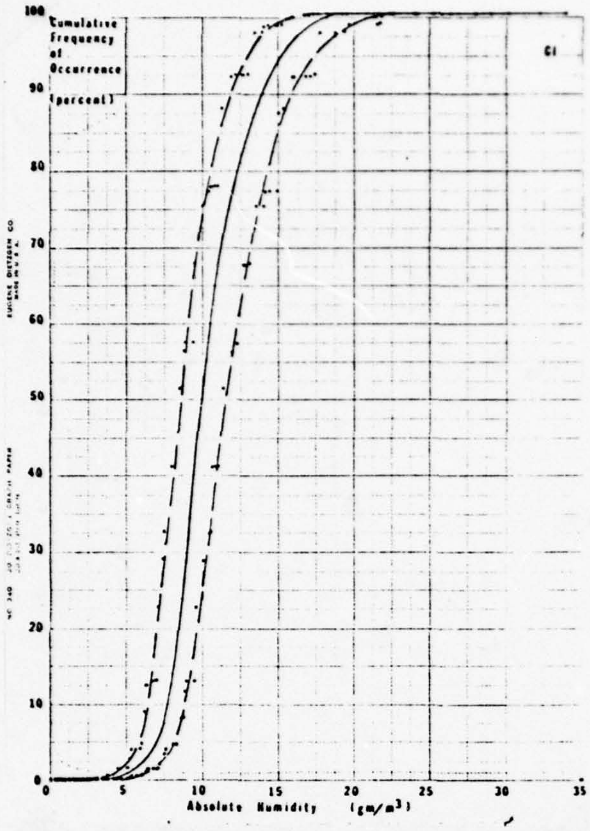

Cumulative Frequency of Occurrence (percent)
CD
Absolute Humidity (gm/m3)

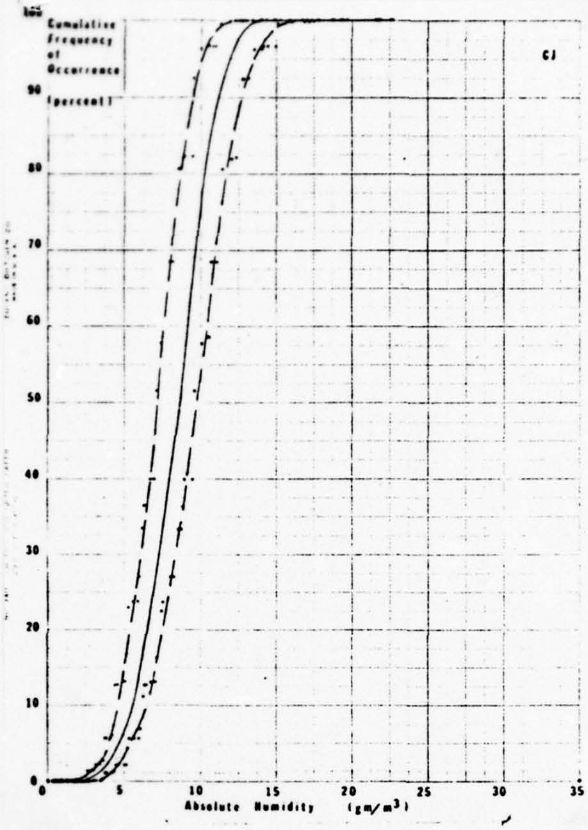

Cumulative Frequency of Occurrence (percent)
CE
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

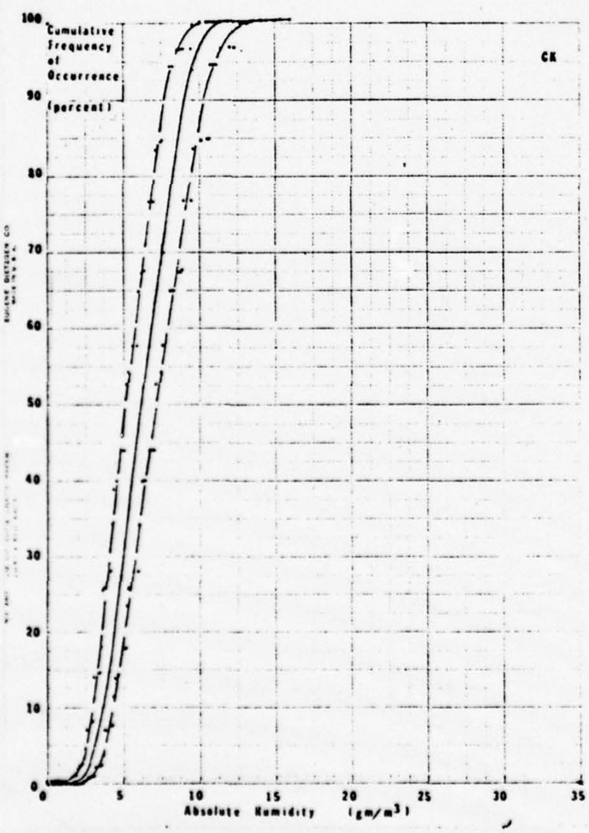

Cumulative Frequency of Occurrence (percent)
CF
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

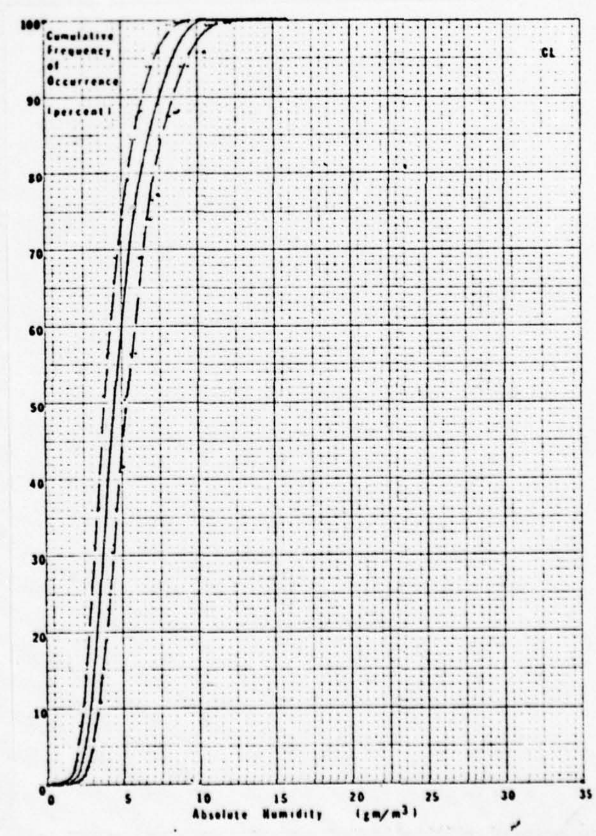

Cumulative Frequency of Occurrence (percent)
CG
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

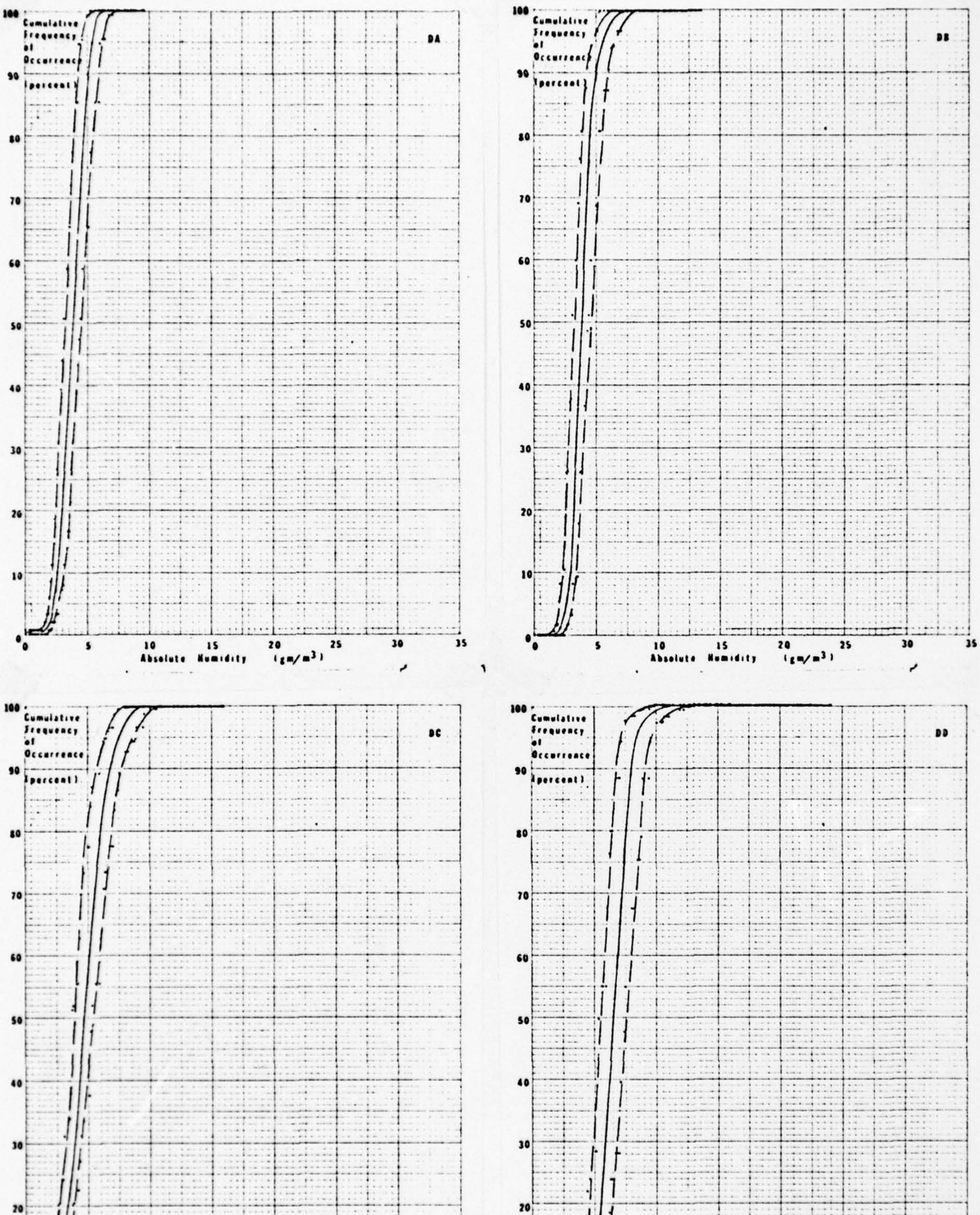

Cumulative Frequency of Occurrence (percent)
CH
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

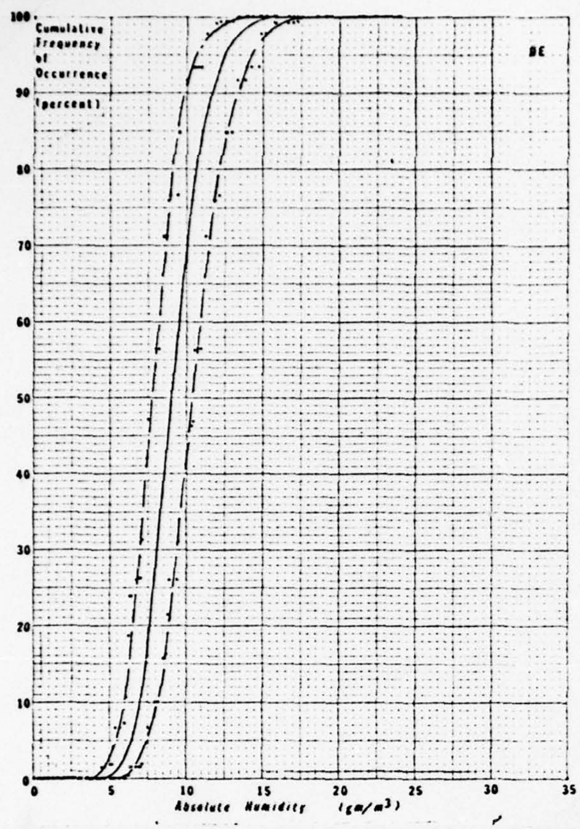

Cumulative Frequency of Occurrence (percent)
CI
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

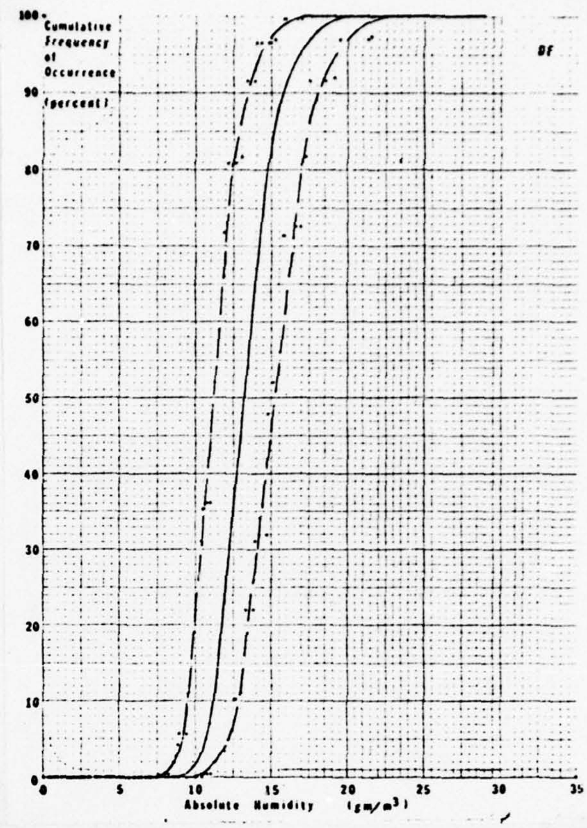

Cumulative Frequency of Occurrence (percent)
CJ
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

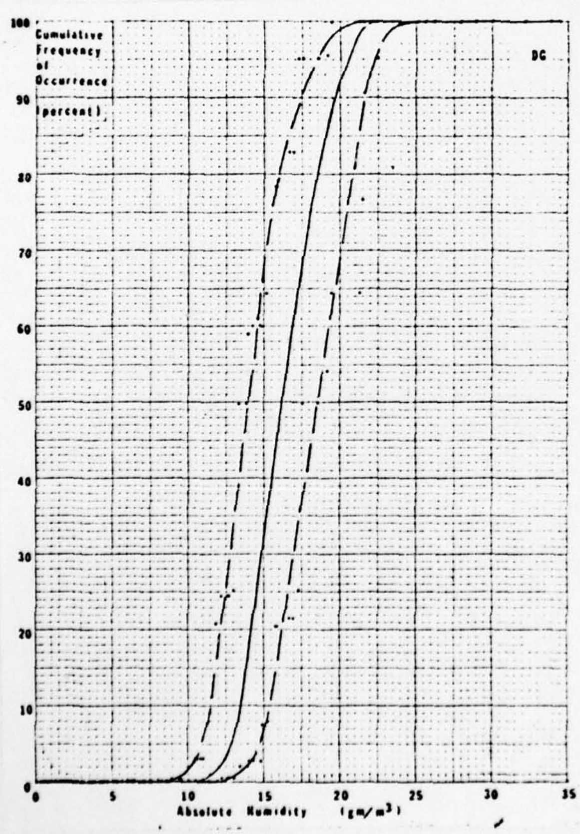

Cumulative Frequency of Occurrence (percent)
CK
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

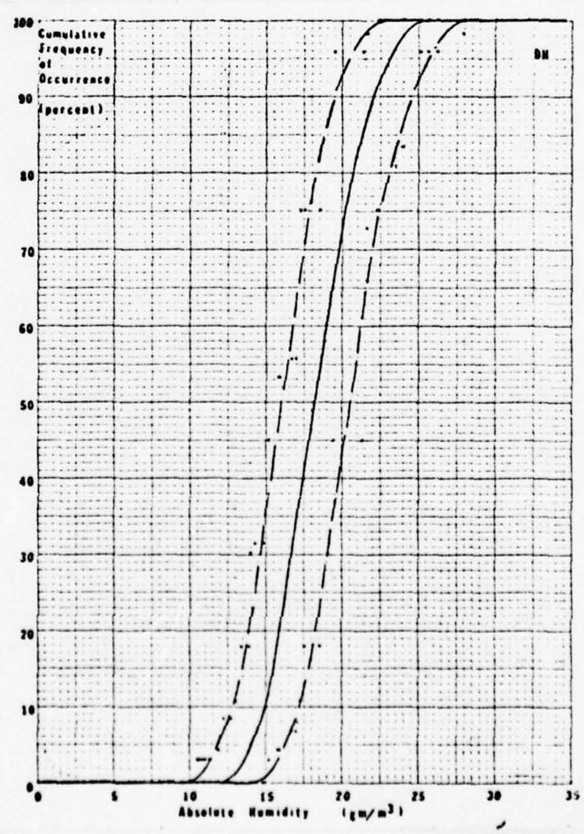

Cumulative Frequency of Occurrence (percent)
CL
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

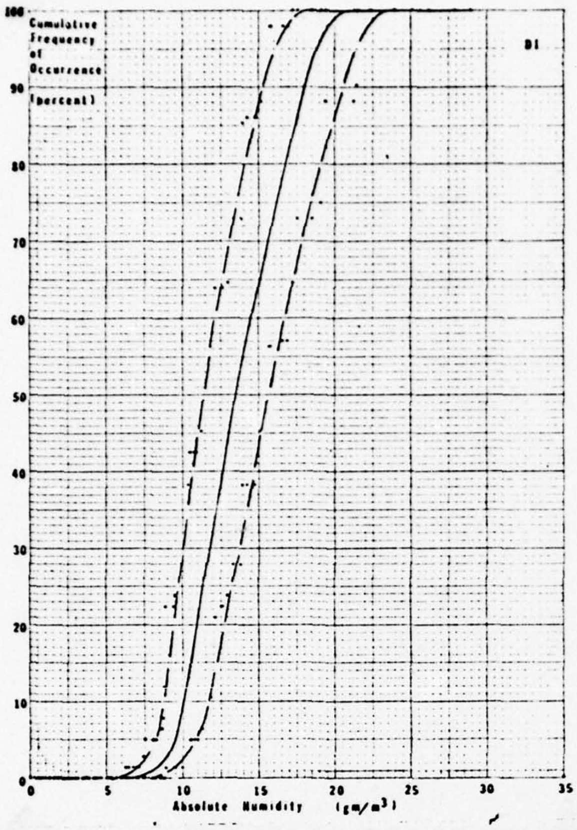

Cumulative Frequency of Occurrence (percent)
DA
DB
DC
DD
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100

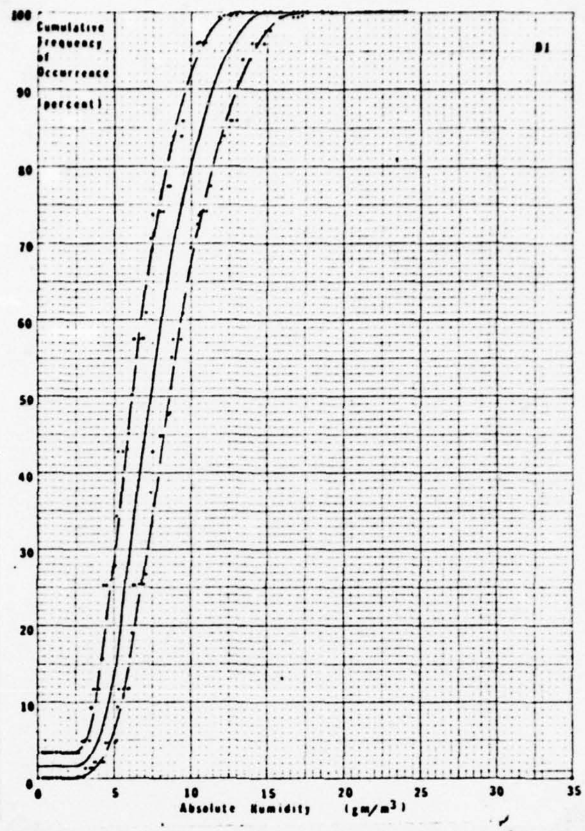

Cumulative Frequency of Occurrence (percent)
BE
Absolute Humidity (gm/m3)

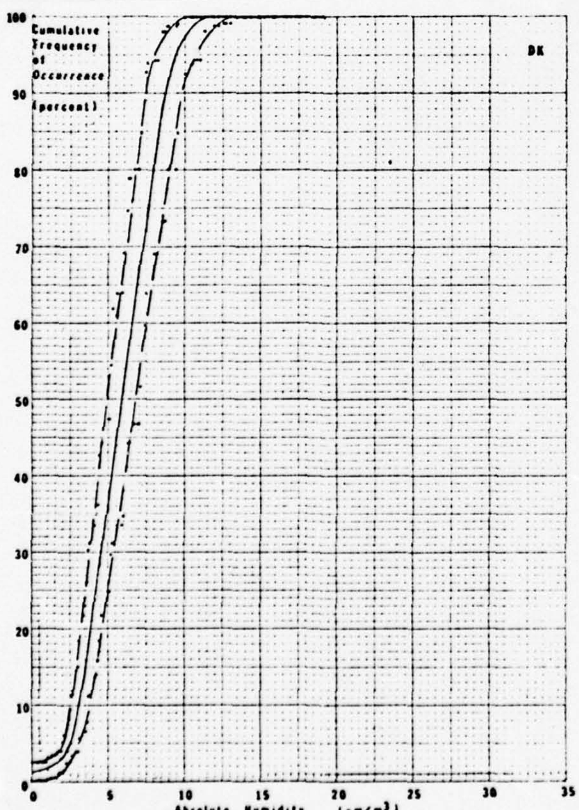

Cumulative Frequency of Occurrence (percent)
BF
Absolute Humidity (gm/m3)

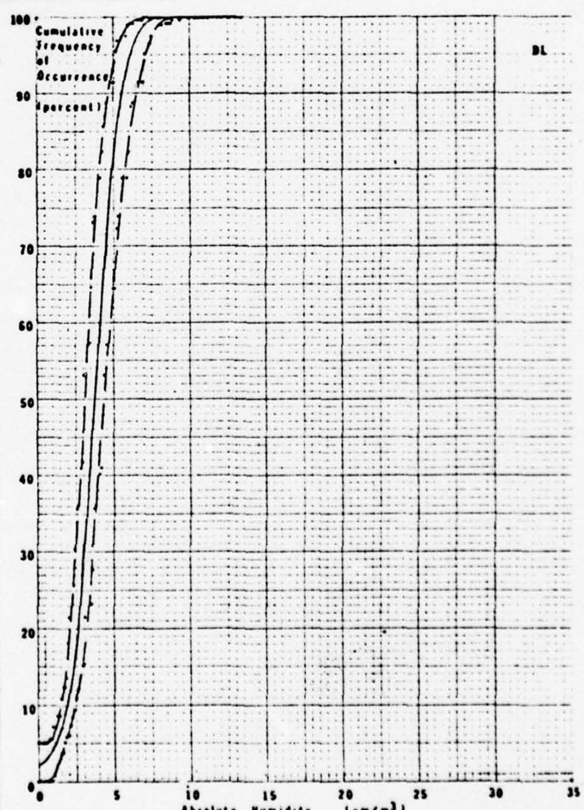

Cumulative Frequency of Occurrence (percent)
BG
Absolute Humidity (gm/m3)

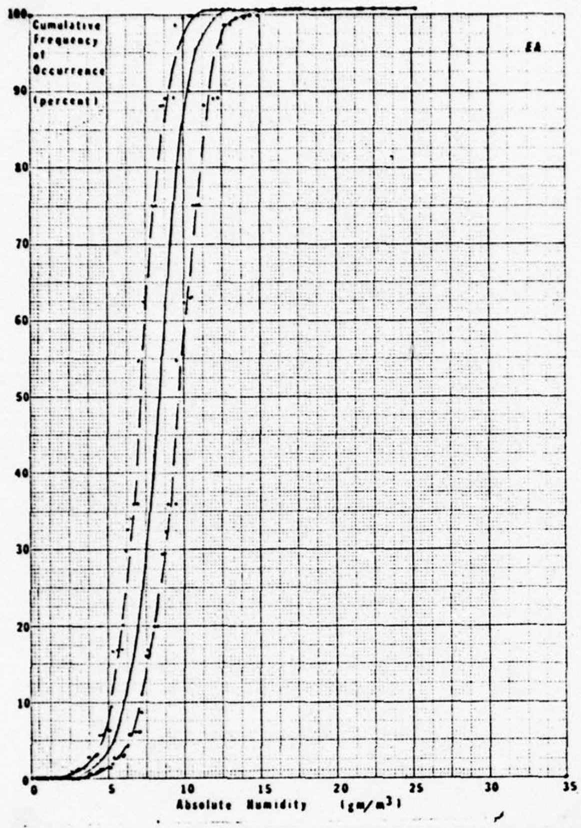

Cumulative Frequency of Occurrence (percent)
BH
Absolute Humidity (gm/m3)

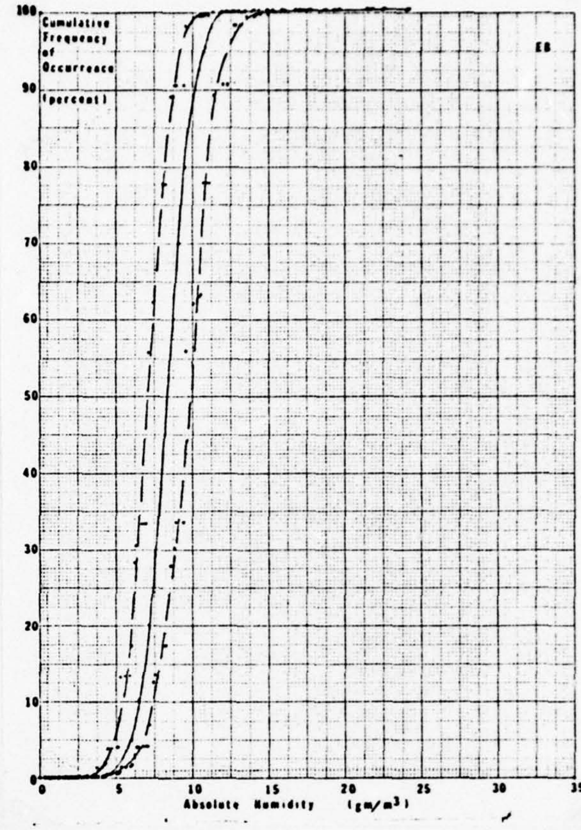

Cumulative Frequency of Occurrence (percent)
DI
Absolute Humidity (gm/m^3)

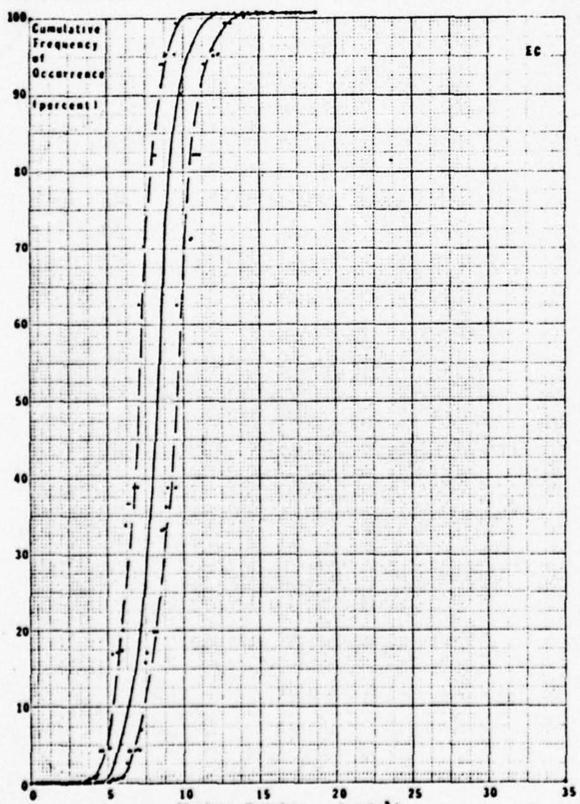

Cumulative Frequency of Occurrence (percent)
DJ
Absolute Humidity (gm/m^3)

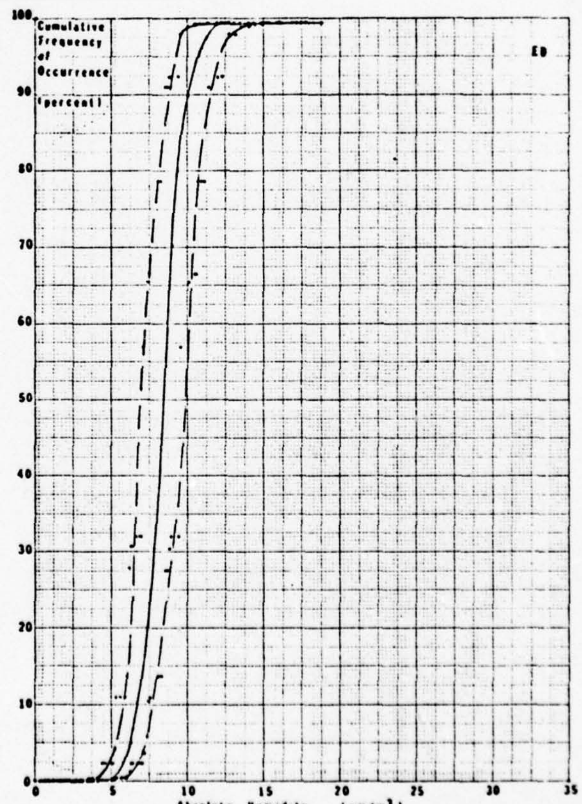

Cumulative Frequency of Occurrence (percent)
DK
Absolute Humidity (gm/m^3)

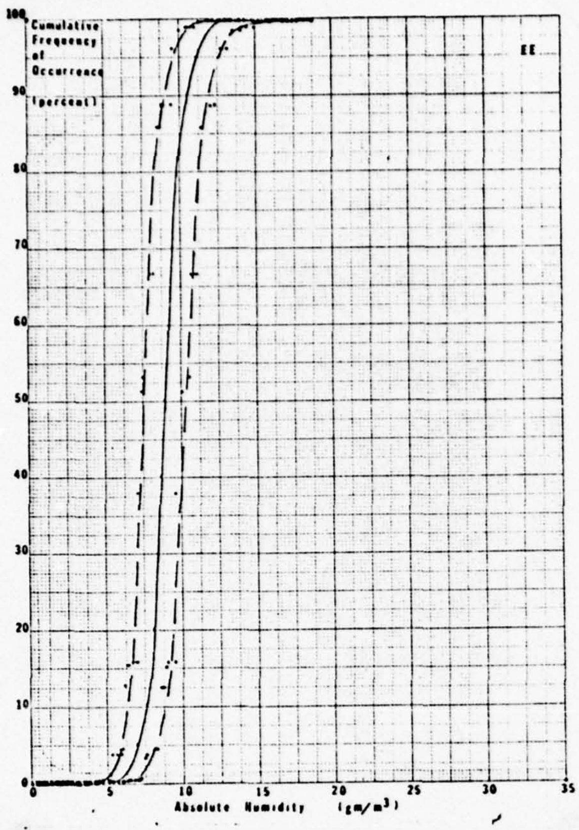

Cumulative Frequency of Occurrence (percent)
DL
Absolute Humidity (gm/m^3)

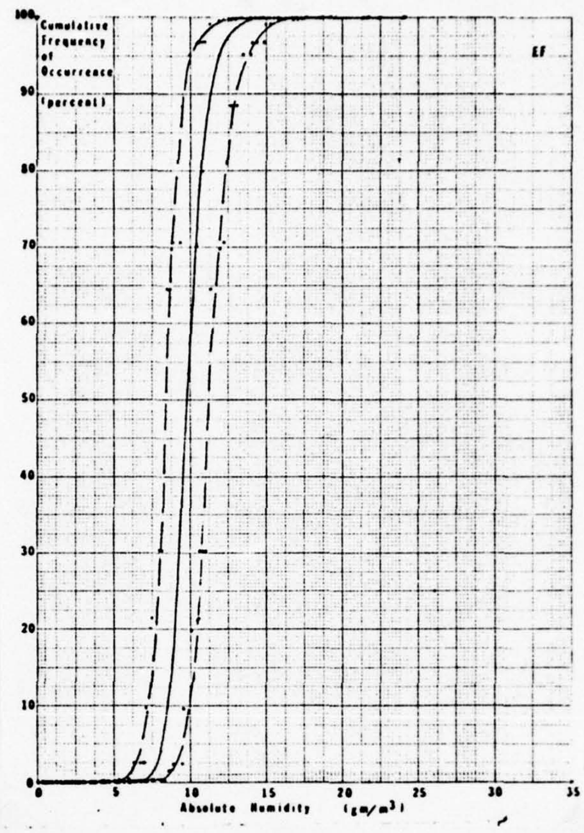

Cumulative Frequency of Occurrence (percent)
EA
0 10 20 30 40 50 60 70 80 90 100
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

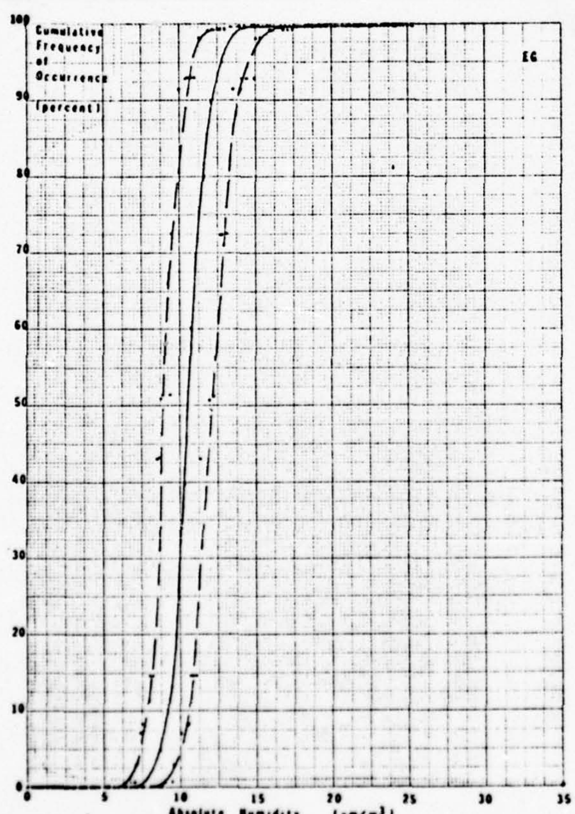

Cumulative Frequency of Occurrence (percent)
EB
0 10 20 30 40 50 60 70 80 90 100
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

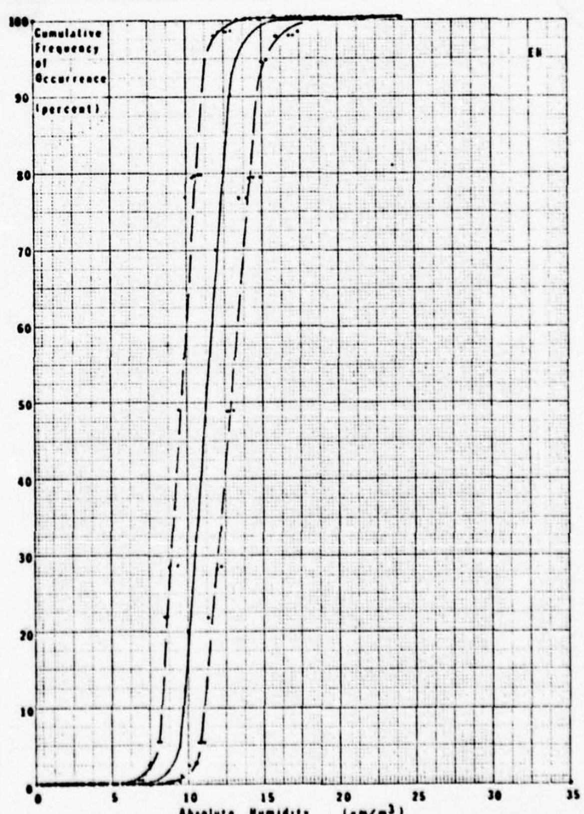

Cumulative Frequency of Occurrence (percent)
EC
0 10 20 30 40 50 60 70 80 90 100
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

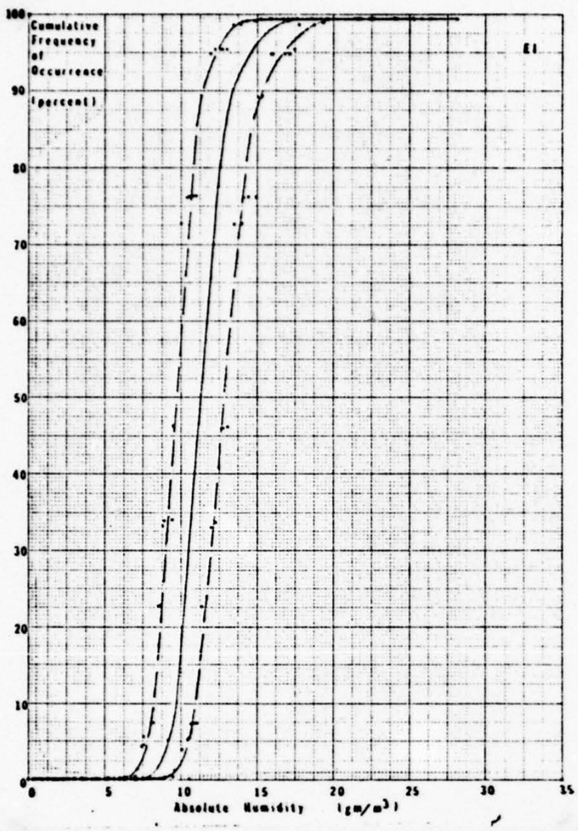

Cumulative Frequency of Occurrence (percent)
ED
0 10 20 30 40 50 60 70 80 90 100
0 5 10 15 20 25 30 35
Absolute Humidity (gm/m3)

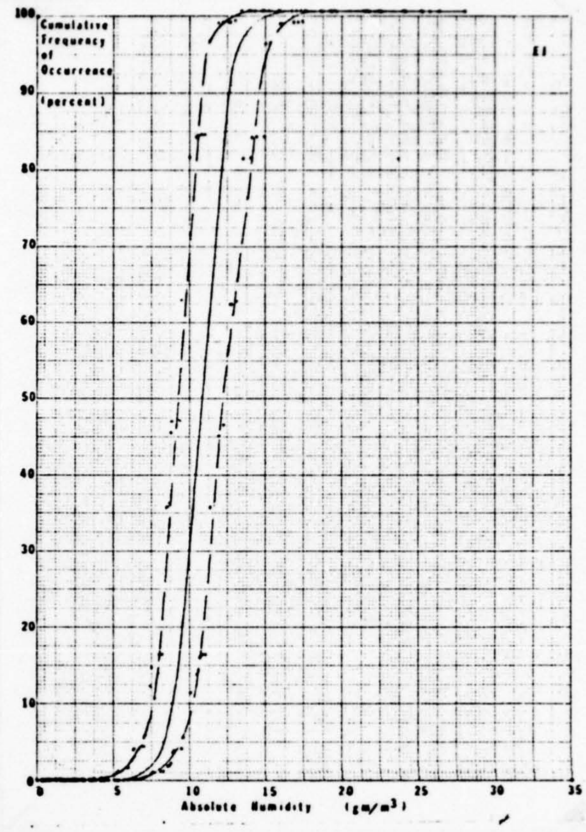

Cumulative Frequency of Occurrence (percent)
EE
Absolute Humidity (gm/m3)

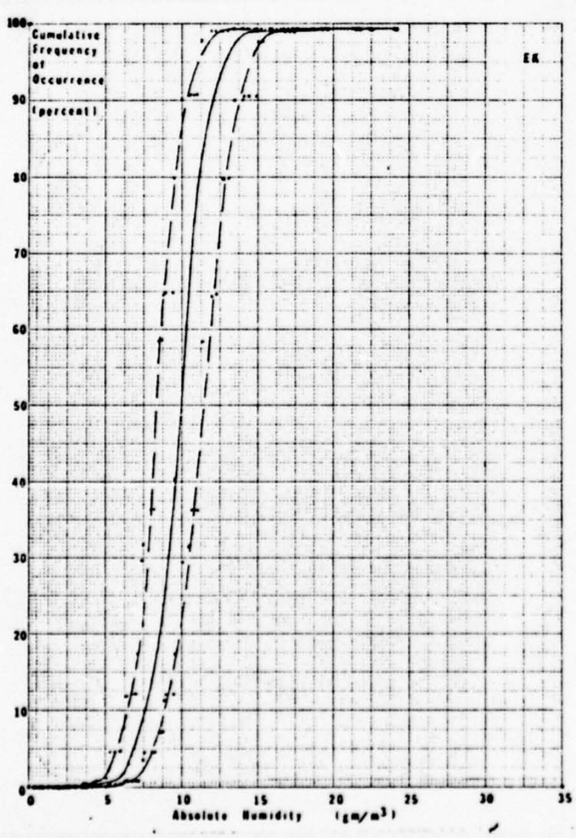

Cumulative Frequency of Occurrence (percent)
EF
Absolute Humidity (gm/m3)

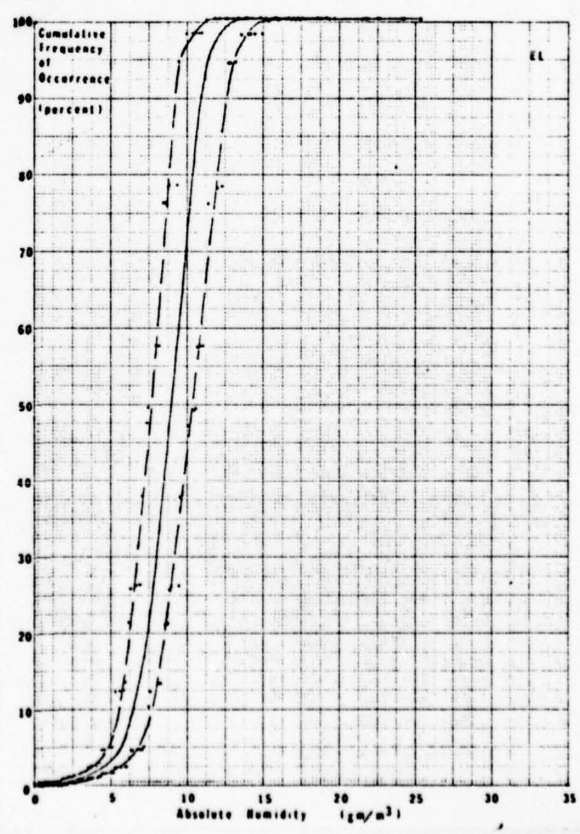

Cumulative Frequency of Occurrence (percent)
EG
Absolute Humidity (gm/m3)

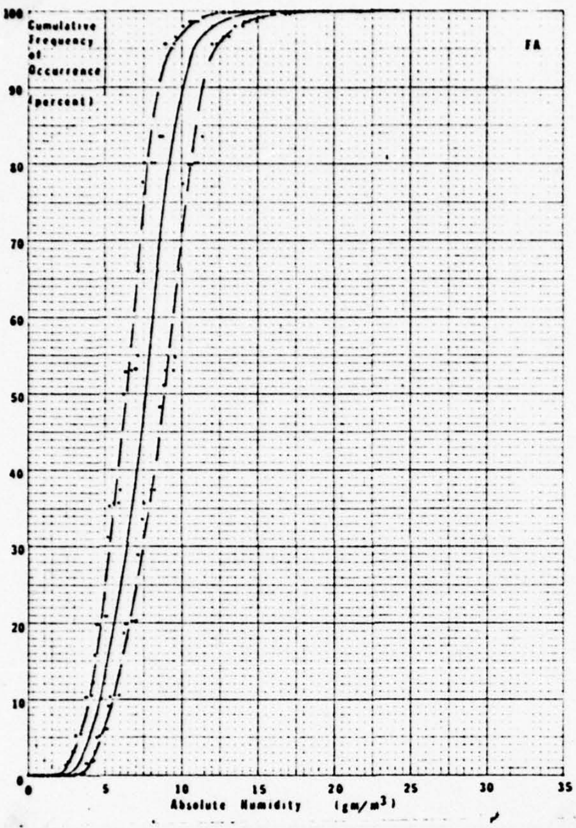

Cumulative Frequency of Occurrence (percent)
EH
Absolute Humidity (gm/m3)

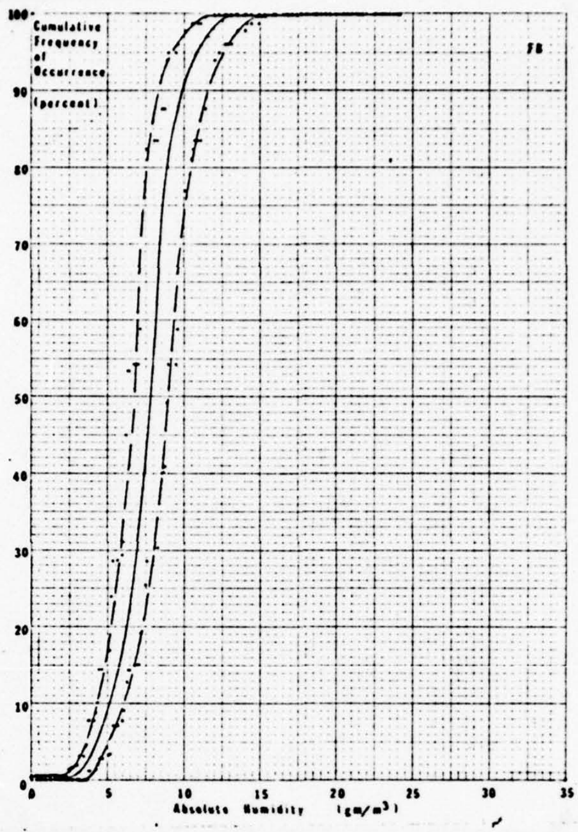

Cumulative Frequency of Occurrence (percent)
EI
Absolute Humidity (gm/m³)

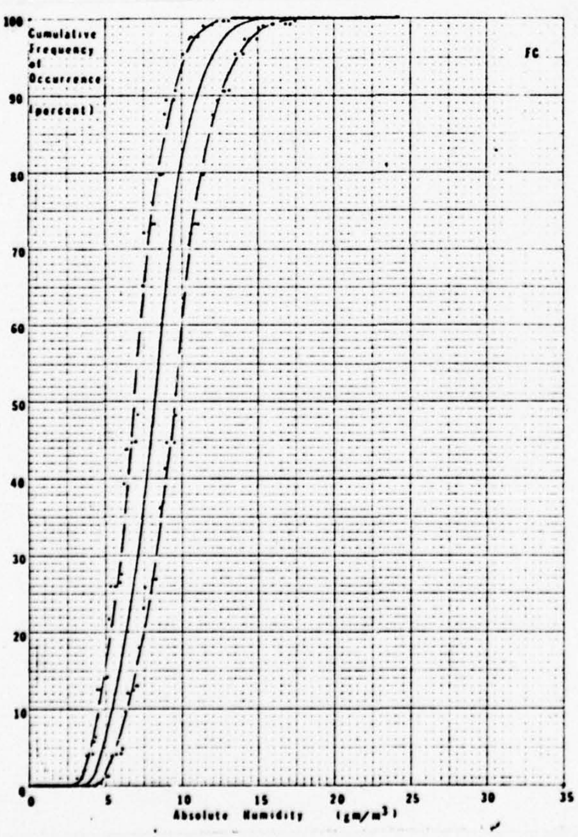

Cumulative Frequency of Occurrence (percent)
EJ
Absolute Humidity (gm/m³)

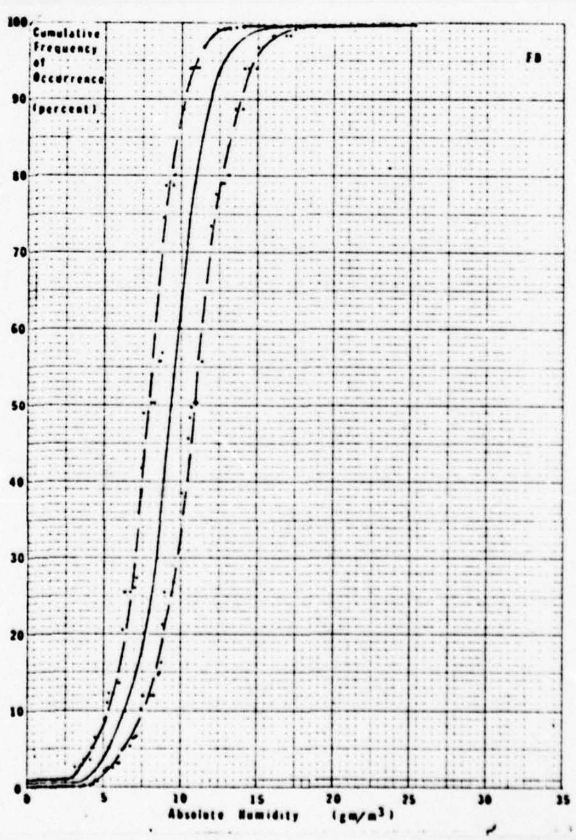

Cumulative Frequency of Occurrence (percent)
EK
Absolute Humidity (gm/m³)

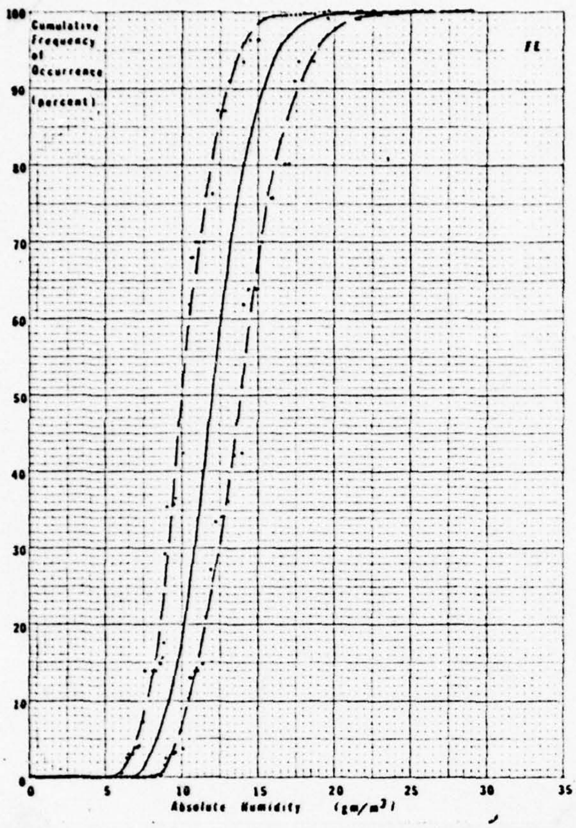

Cumulative Frequency of Occurrence (percent)
EL
Absolute Humidity (gm/m³)

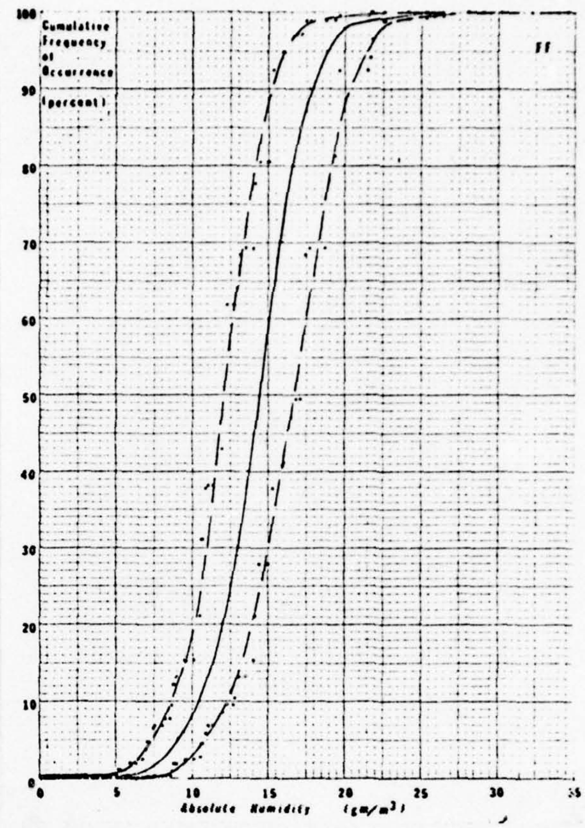

Cumulative Frequency of Occurrence (percent)
FA
Absolute Humidity (gm/m³)

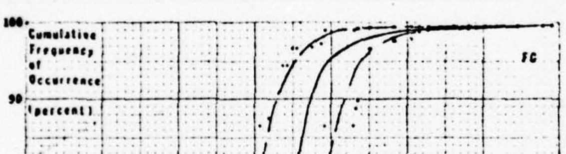

Cumulative Frequency of Occurrence (percent)
FB
Absolute Humidity (gm/m³)

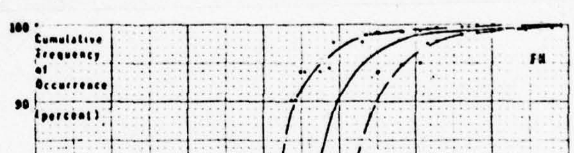

Cumulative Frequency of Occurrence (percent)
FC
Absolute Humidity (gm/m³)

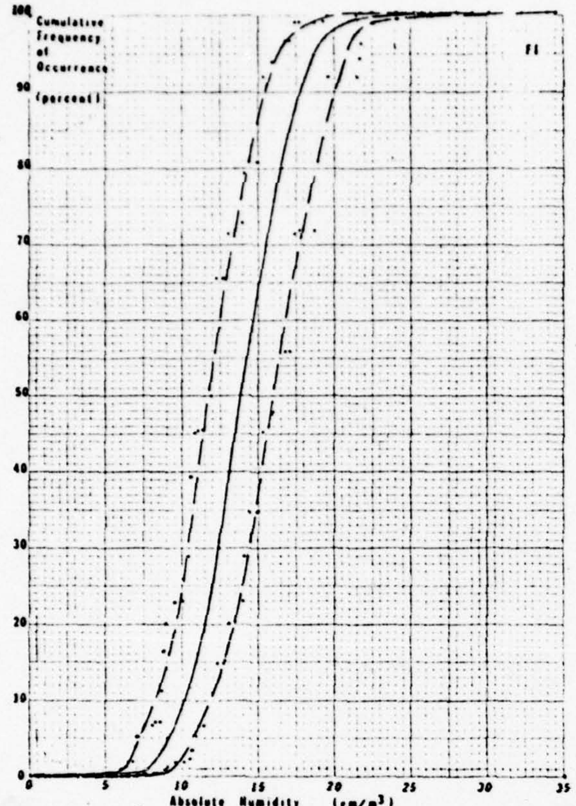

Cumulative Frequency of Occurrence (percent)
FD
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
FE
Absolute Humidity (gm/m³)

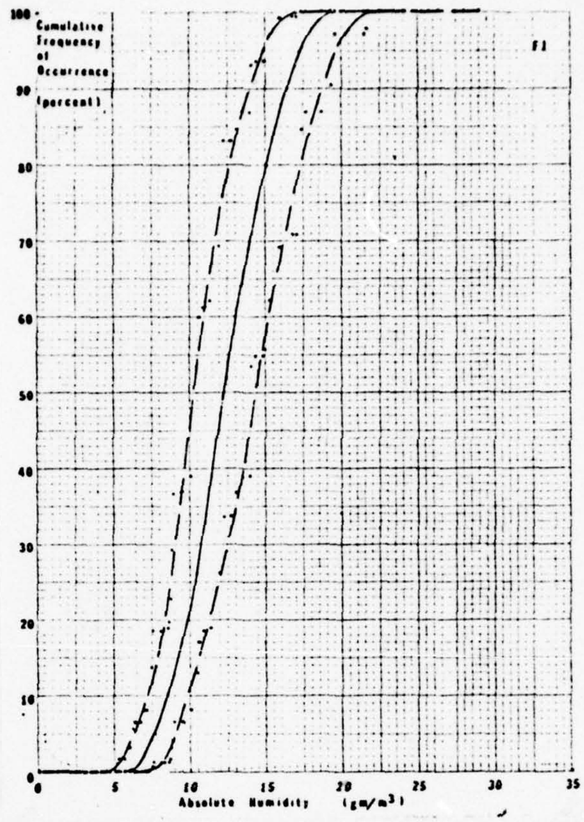

Cumulative Frequency of Occurrence (percent)
FF
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
FG
Absolute Humidity (gm/m³)

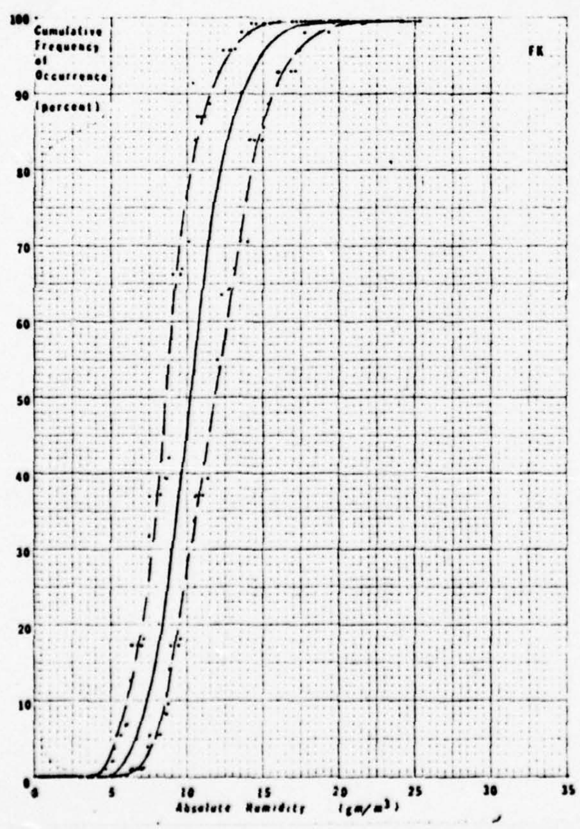

Cumulative Frequency of Occurrence (percent)
FH
Absolute Humidity (gm/m³)



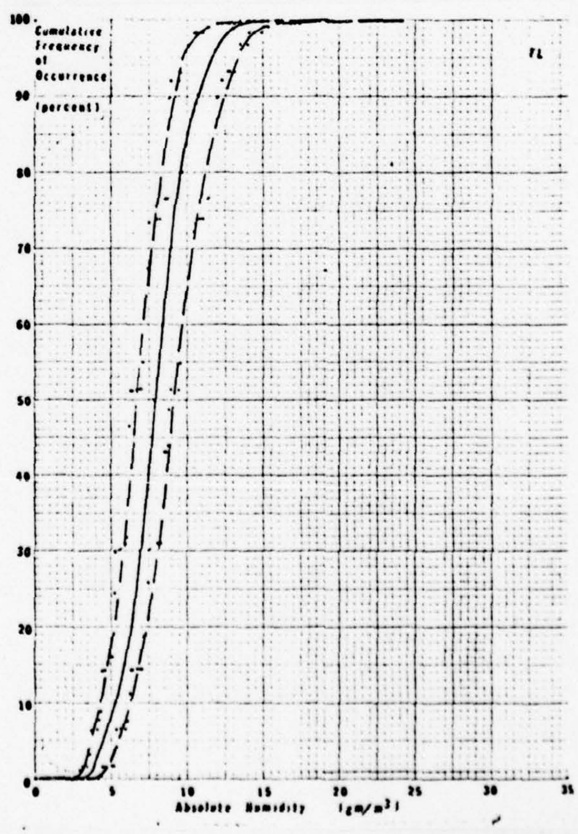
Cumulative Frequency of Occurrence (percent)
FI
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)



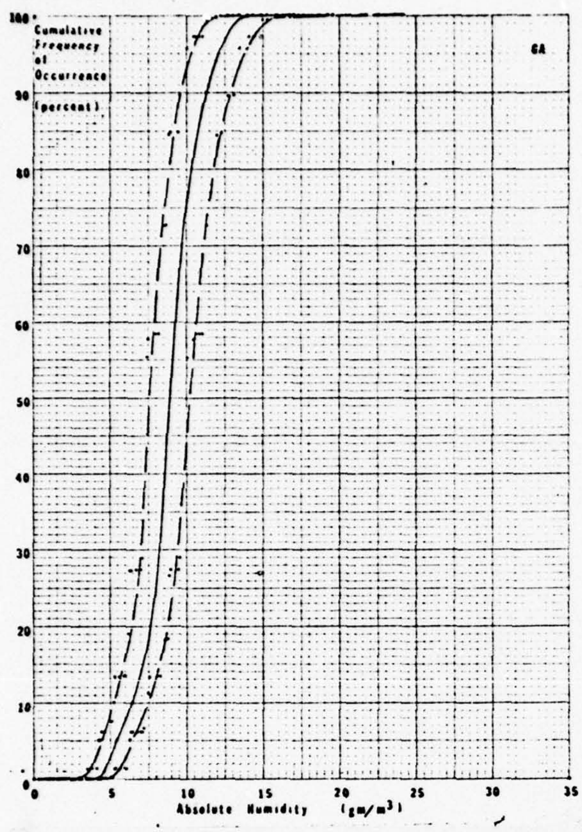
Cumulative Frequency of Occurrence (percent)
FJ
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

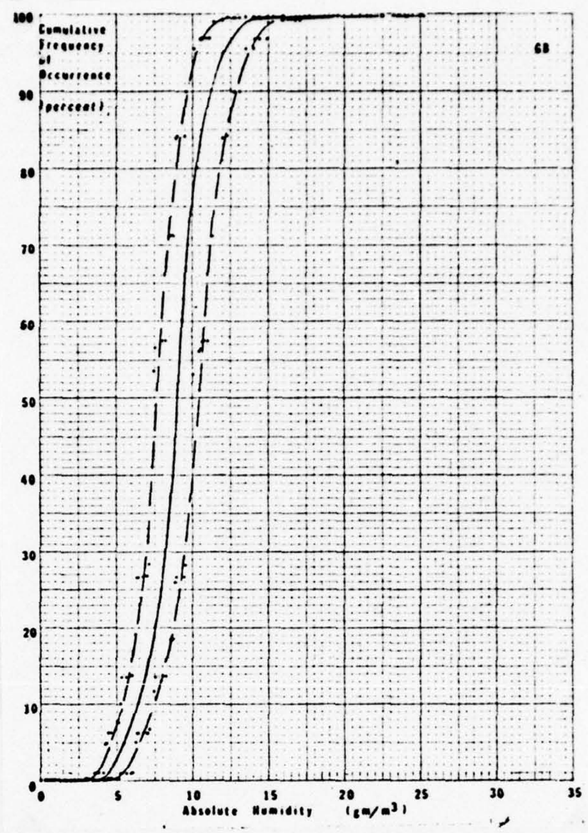


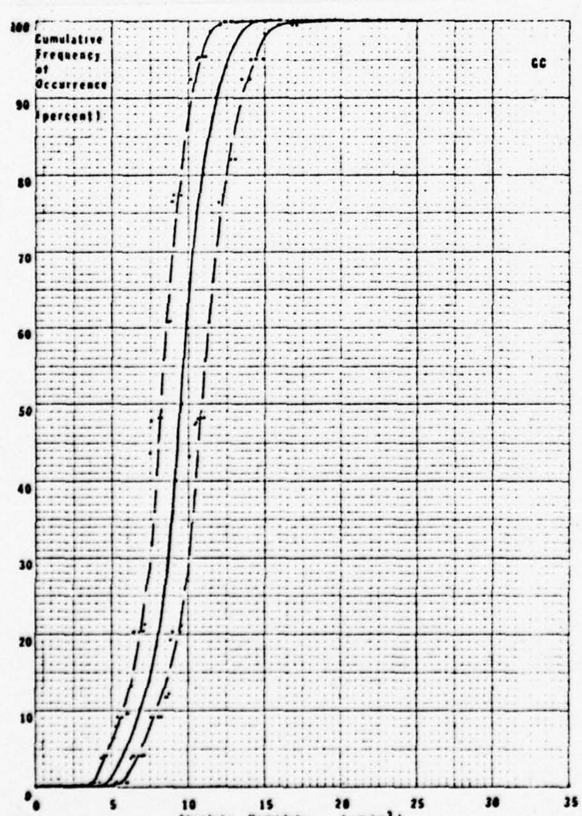
Cumulative Frequency of Occurrence (percent)
FK
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

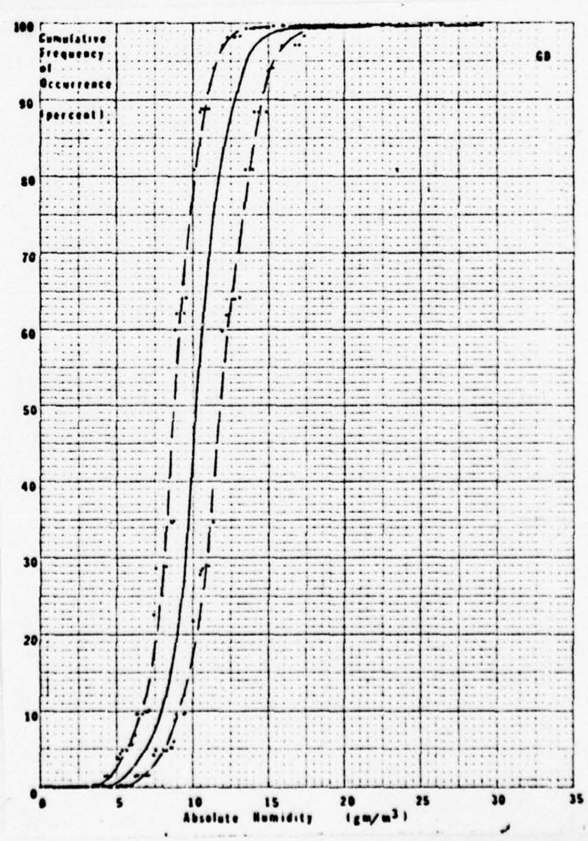


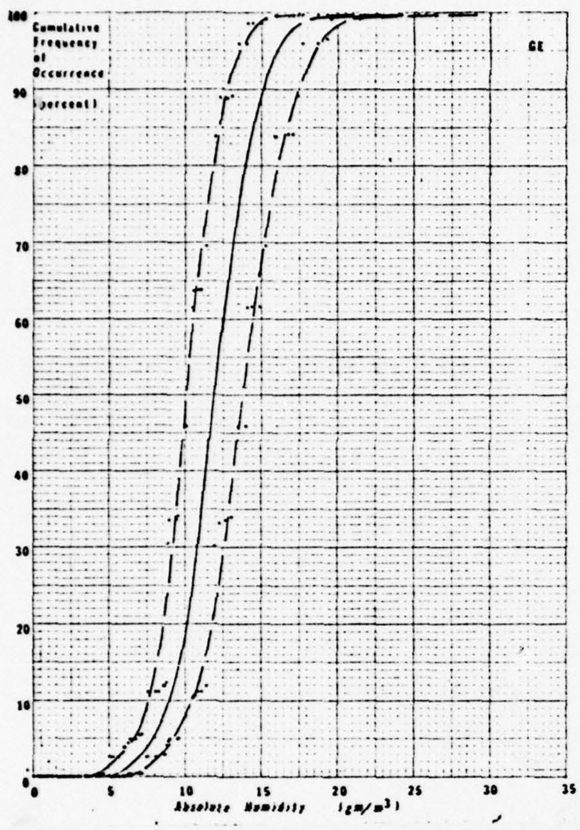
Cumulative Frequency of Occurrence (percent)
FL
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

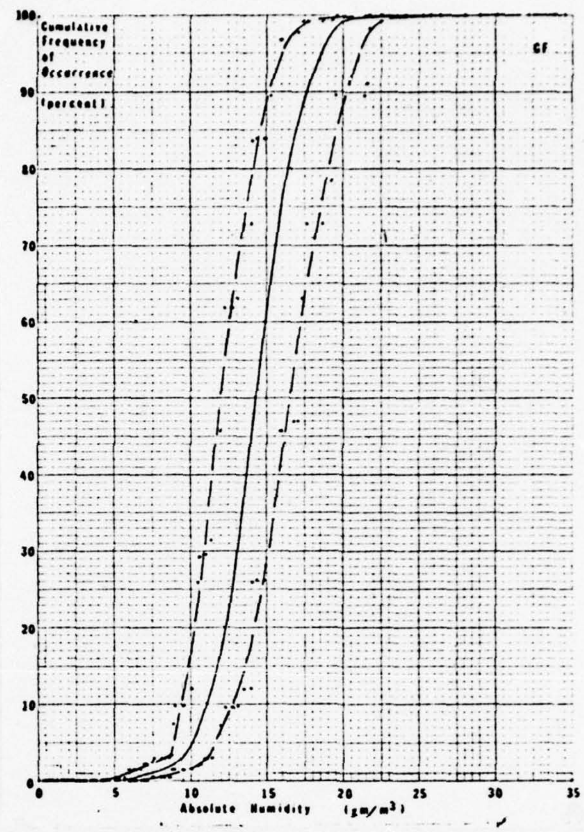

Cumulative Frequency of Occurrence (percent)
6A
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

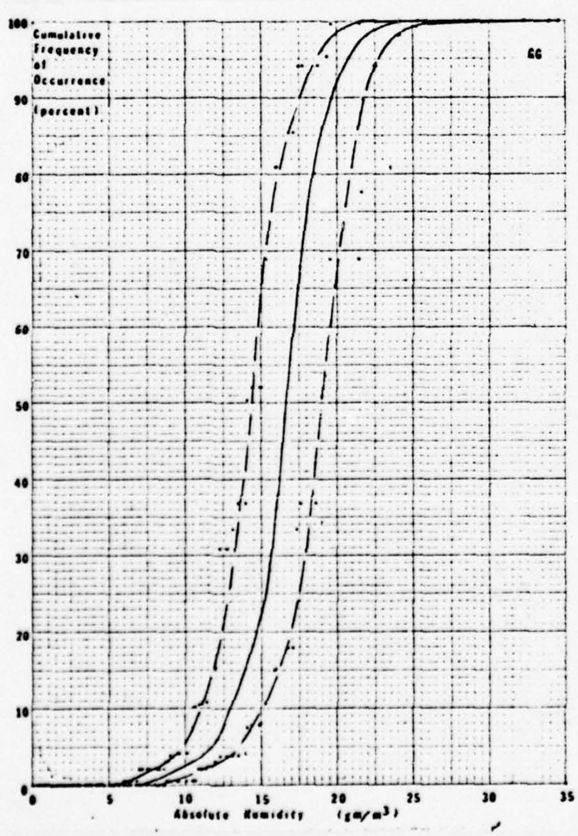

Cumulative Frequency of Occurrence (percent)
6B
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

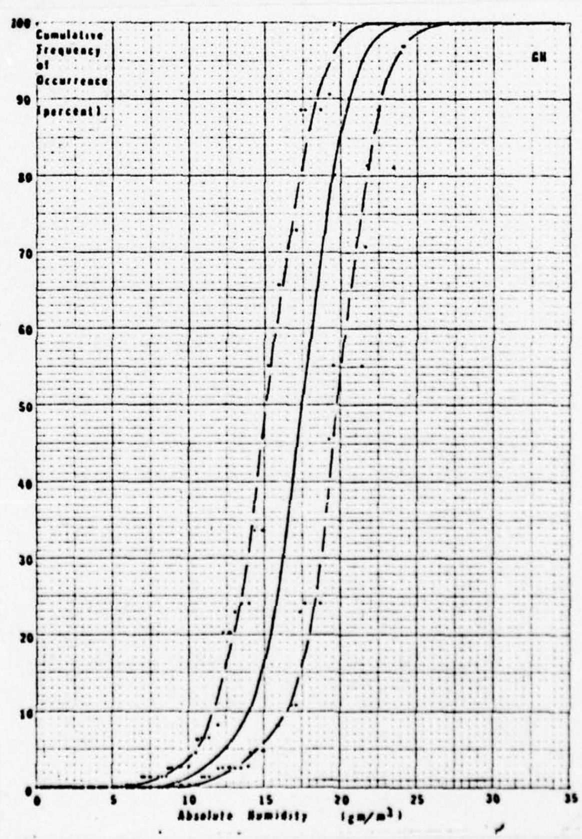

Cumulative Frequency of Occurrence (percent)
6C
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

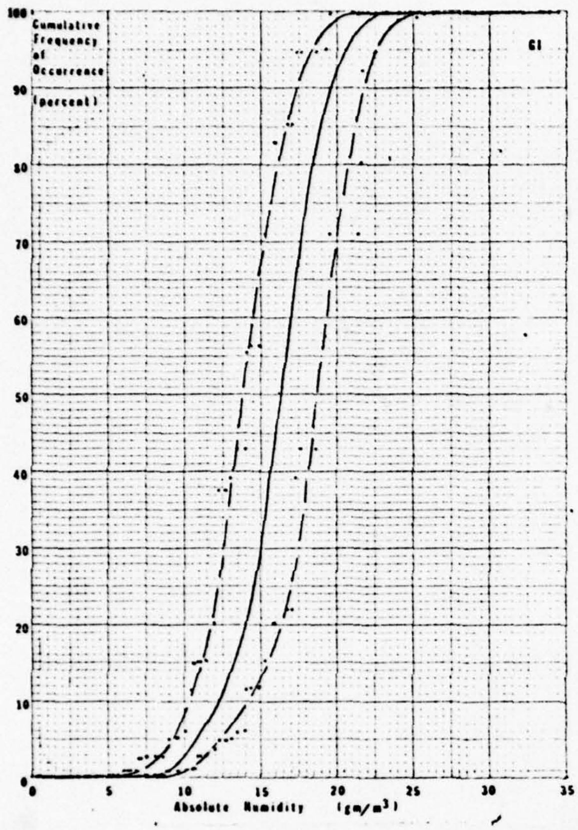

Cumulative Frequency of Occurrence (percent)
6D
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
GE
Absolute Humidity (gm/m³)

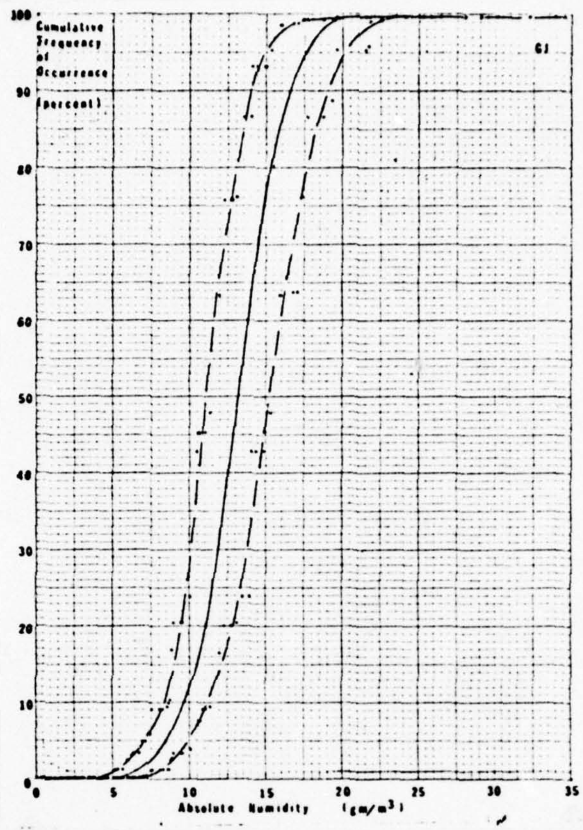

Cumulative Frequency of Occurrence (percent)
GF
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
GG
Absolute Humidity (gm/m³)

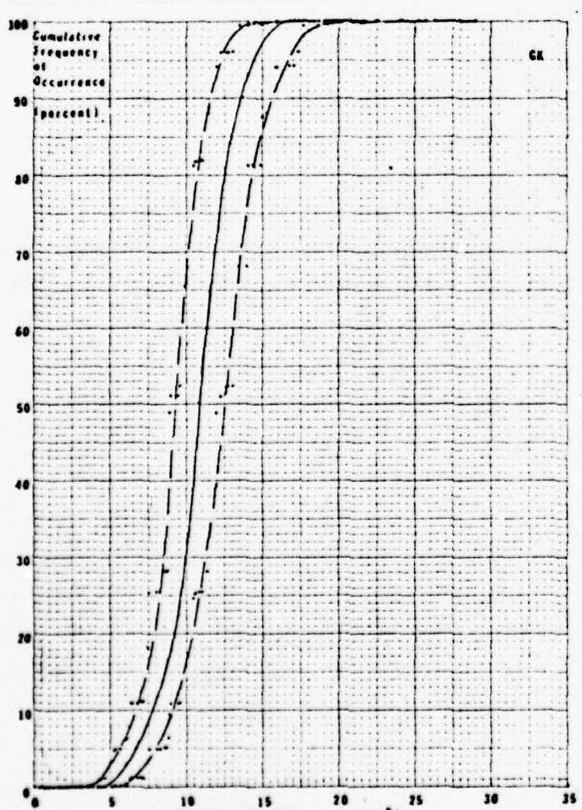

Cumulative Frequency of Occurrence (percent)
GH
Absolute Humidity (gm/m³)



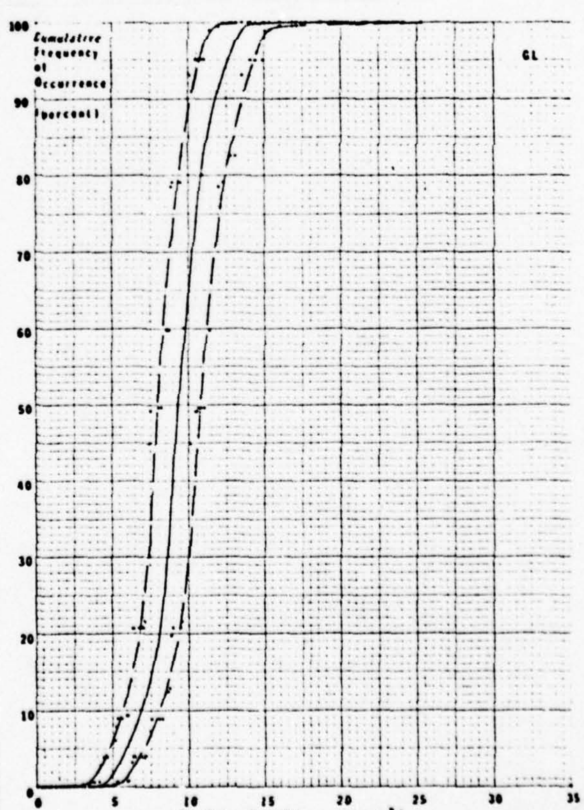
Cumulative Frequency of Occurrence (percent)
GI
Absolute Humidity (gm/m³)



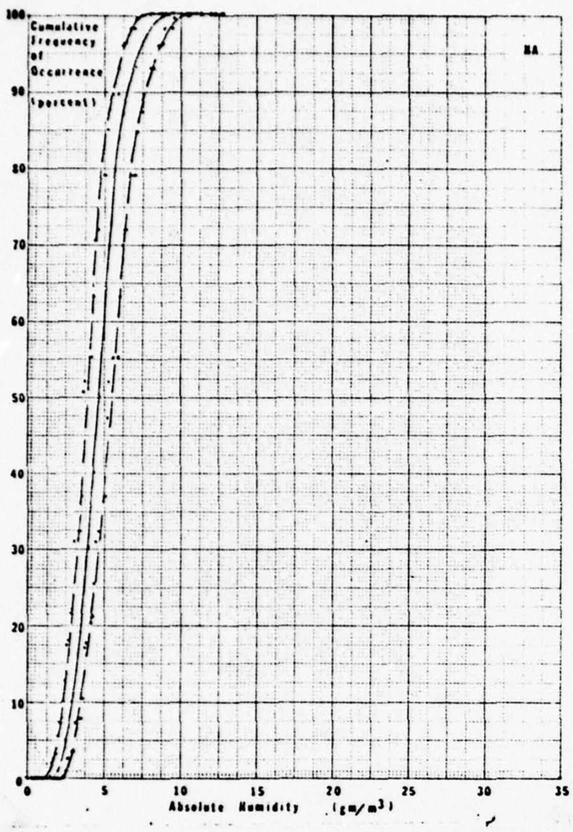
Cumulative Frequency of Occurrence (percent)
GJ
Absolute Humidity (gm/m³)

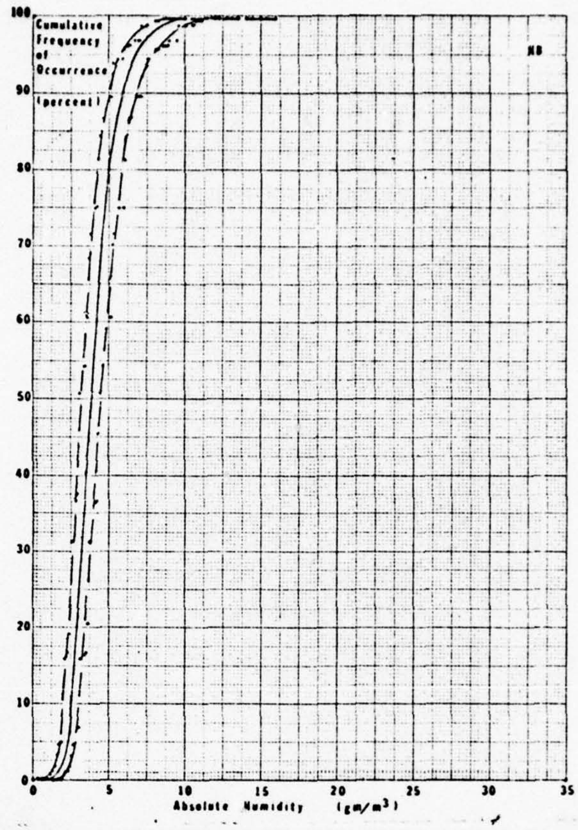


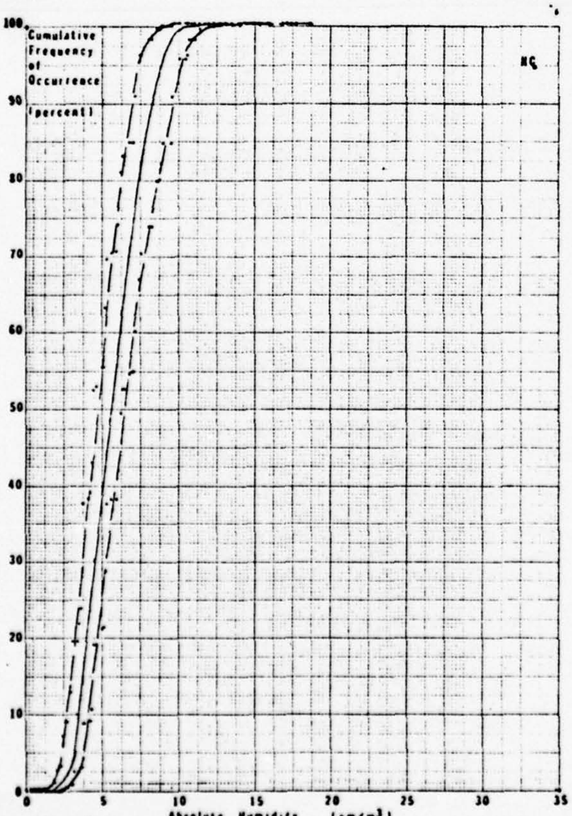
Cumulative Frequency of Occurrence (percent)
GK
Absolute Humidity (gm/m³)

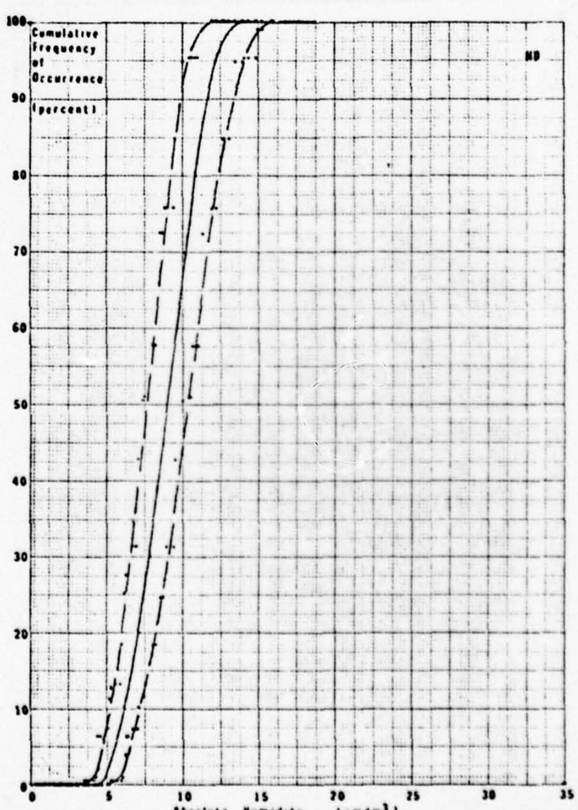


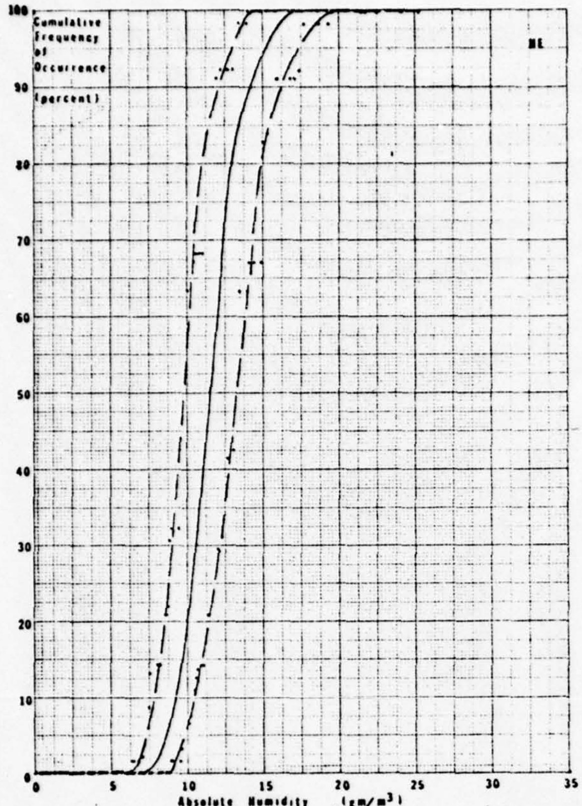
Cumulative Frequency of Occurrence (percent)
GL
Absolute Humidity (gm/m³)

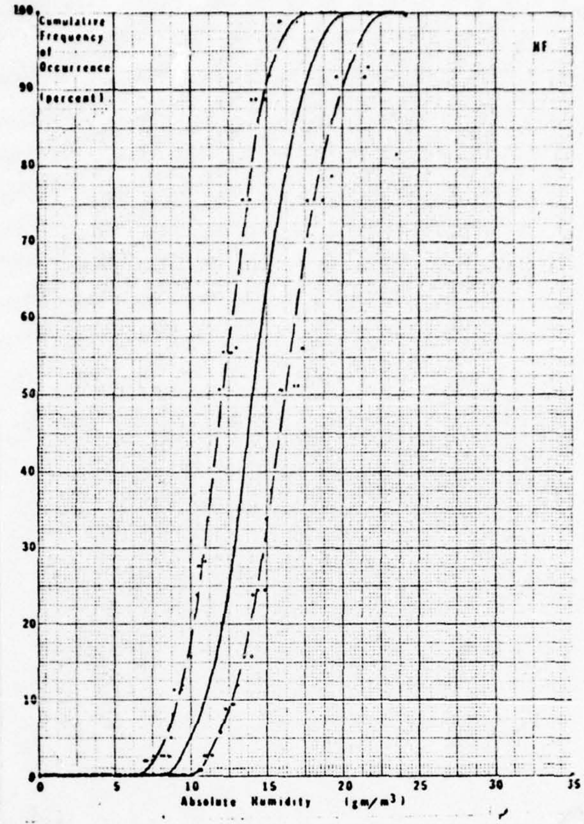

Cumulative Frequency of Occurrence (percent)
NA
Absolute Humidity (gm/m3)

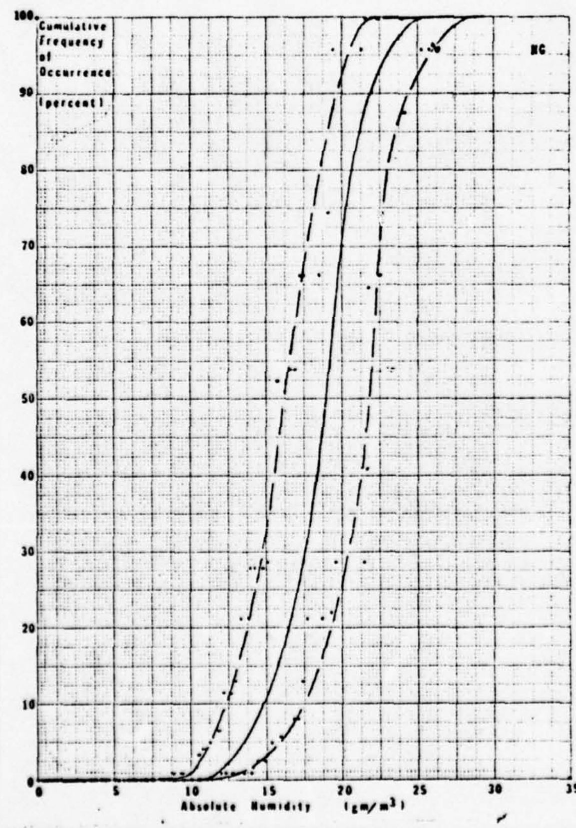

Cumulative Frequency of Occurrence (percent)
NB
Absolute Humidity (gm/m3)

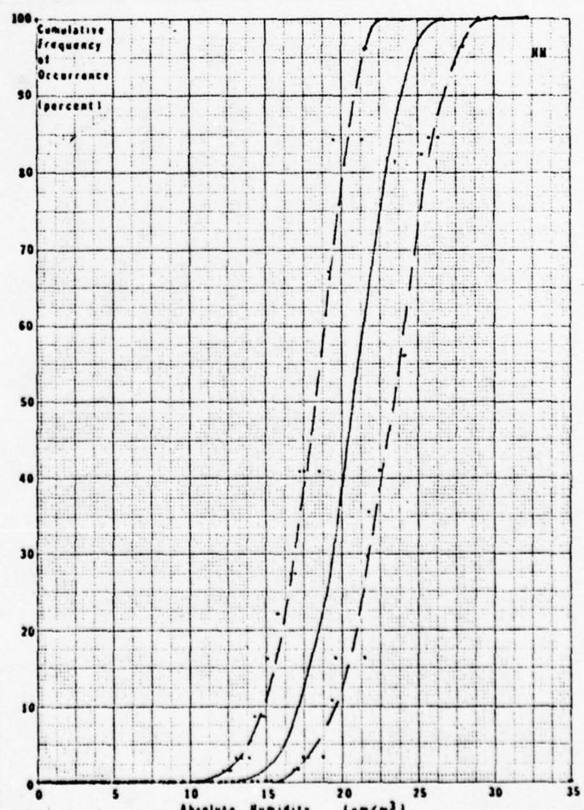

Cumulative Frequency of Occurrence (percent)
NC
Absolute Humidity (gm/m3)

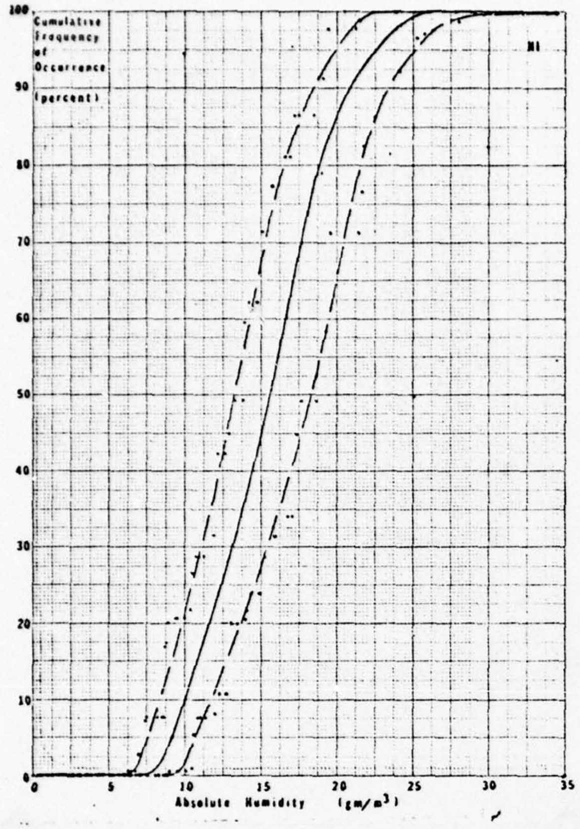

Cumulative Frequency of Occurrence (percent)
ND
Absolute Humidity (gm/m3)

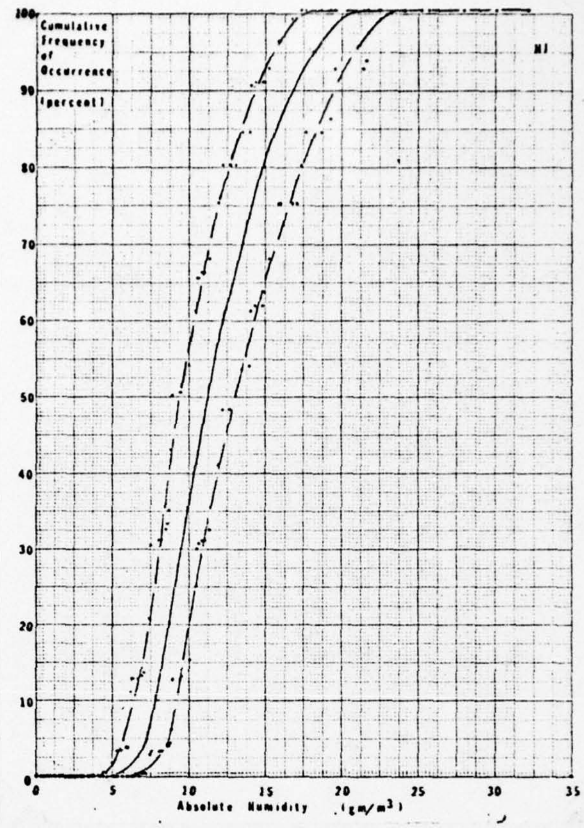

Cumulative Frequency of Occurrence (percent)
NE
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

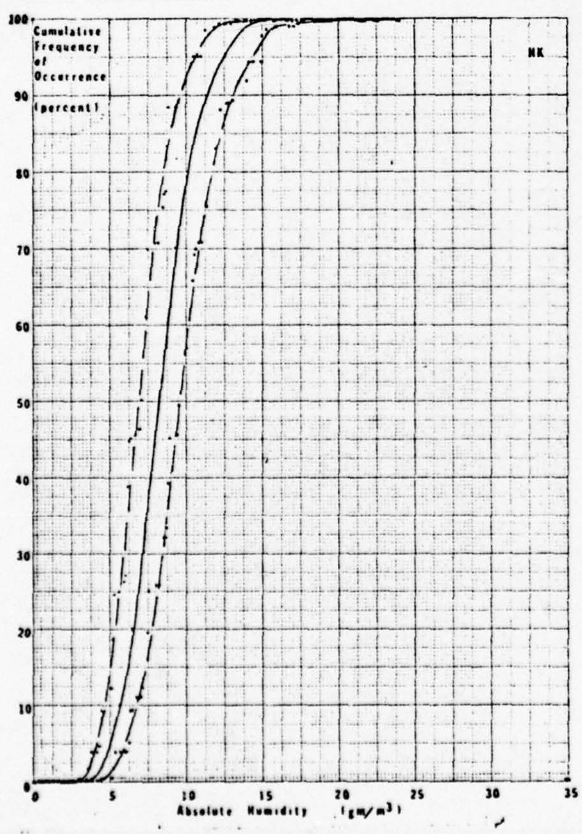

Cumulative Frequency of Occurrence (percent)
NF
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

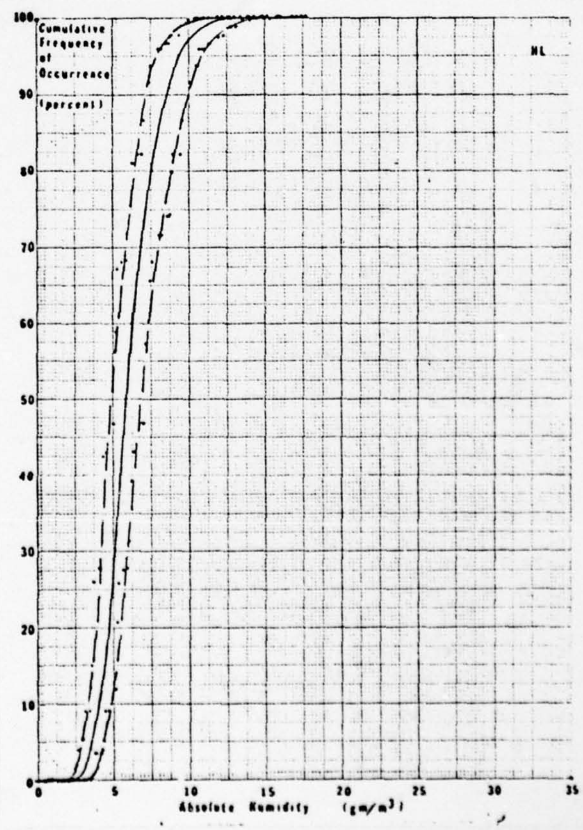

Cumulative Frequency of Occurrence (percent)
NG
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

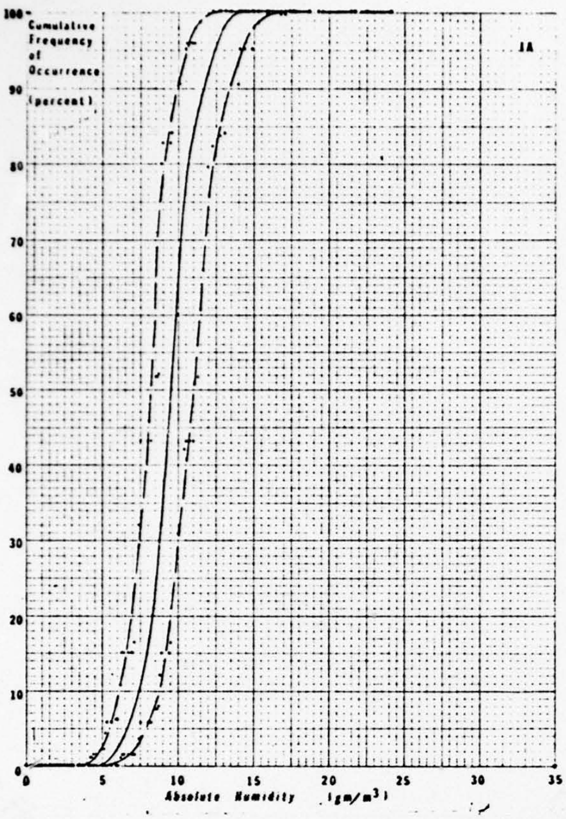

Cumulative Frequency of Occurrence (percent)
NH
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
HI
Absolute Humidity (gm/m³)

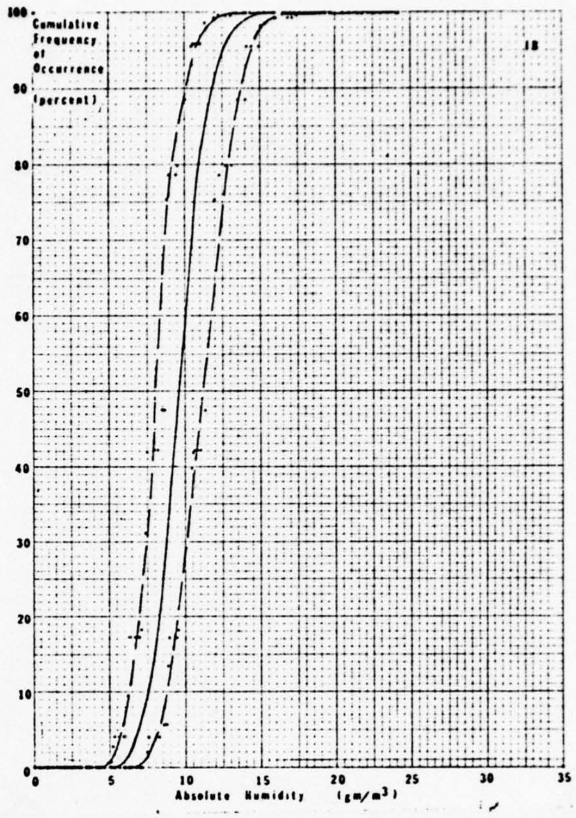

Cumulative Frequency of Occurrence (percent)
HJ
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
HK
Absolute Humidity (gm/m³)

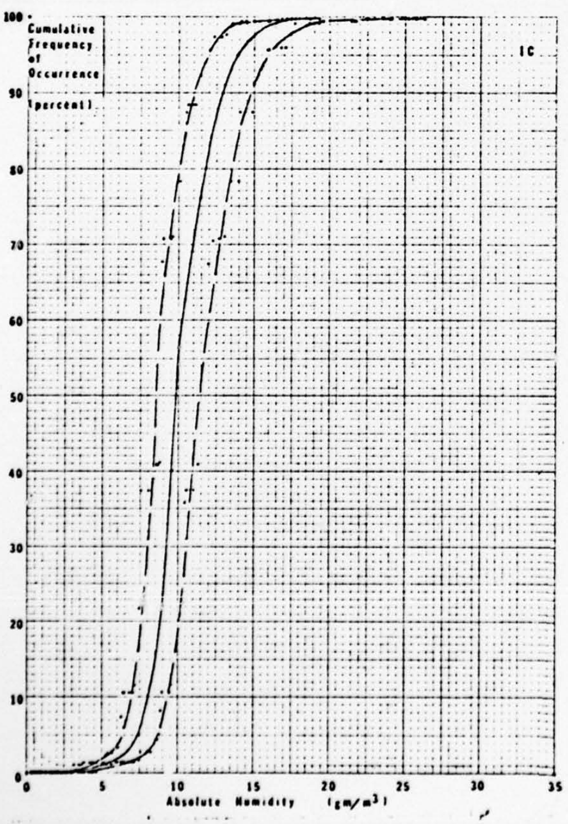

Cumulative Frequency of Occurrence (percent)
HL
Absolute Humidity (gm/m³)



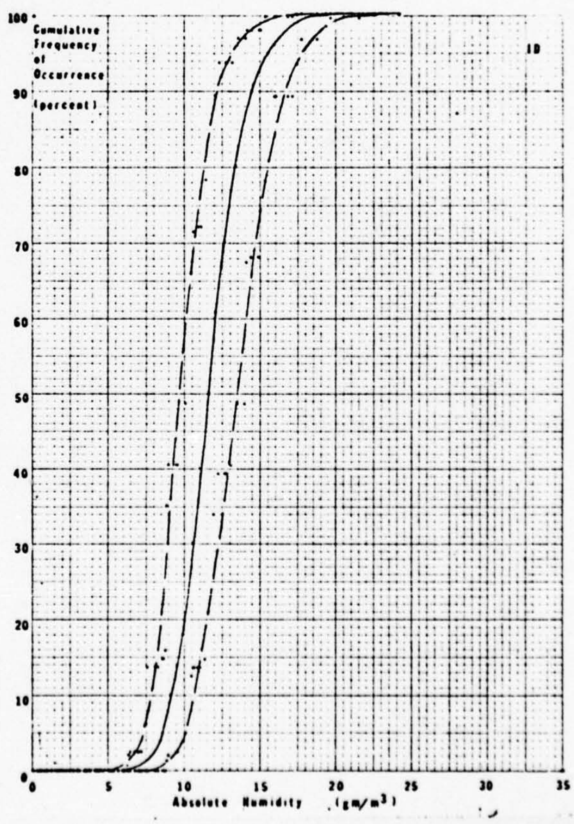
Cumulative Frequency of Occurrence (percent)
1A
Absolute Humidity (gm/m3)



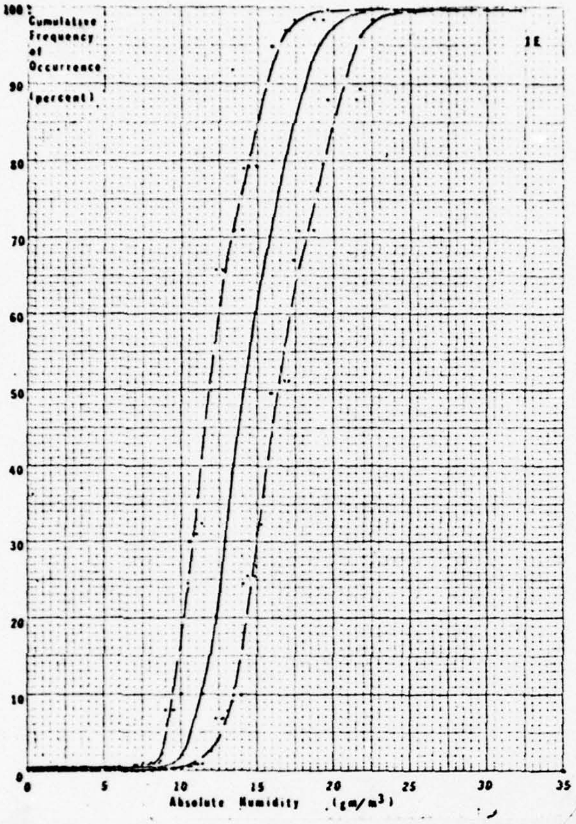
Cumulative Frequency of Occurrence (percent)
1B
Absolute Humidity (gm/m3)

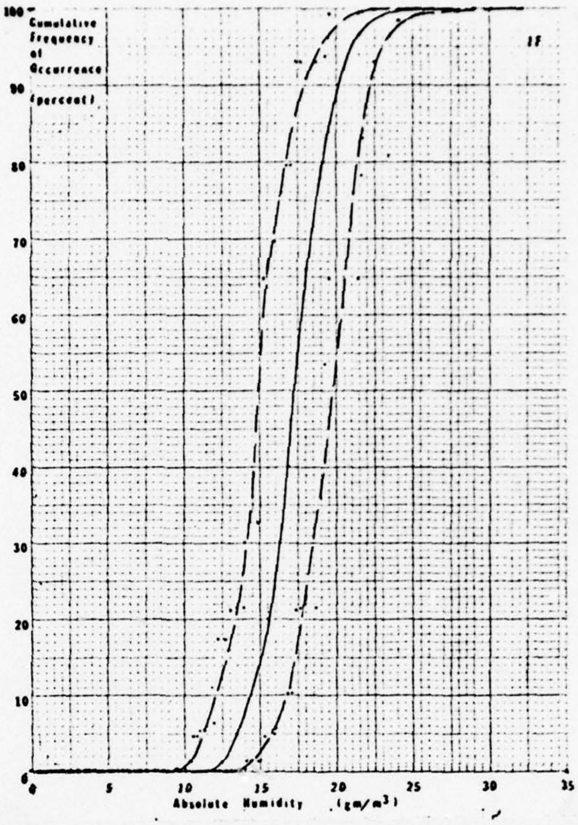


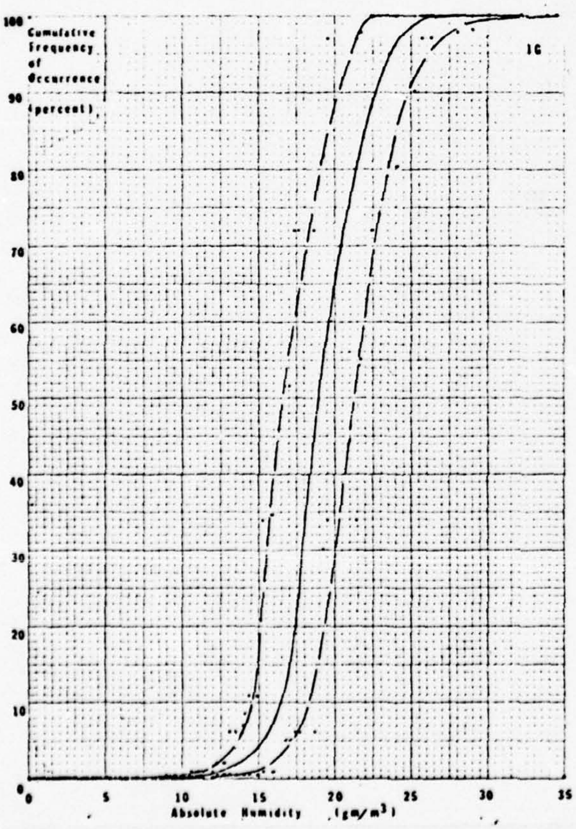
Cumulative Frequency of Occurrence (percent)
1C
Absolute Humidity (gm/m3)

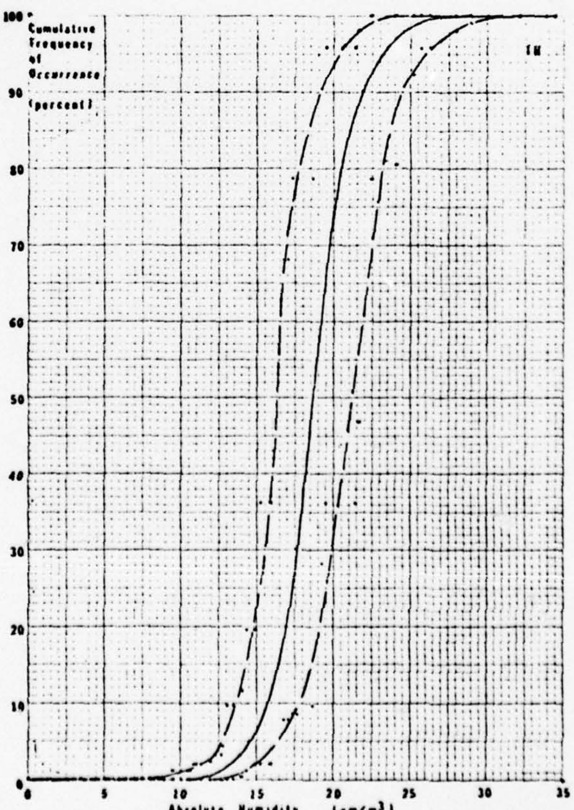


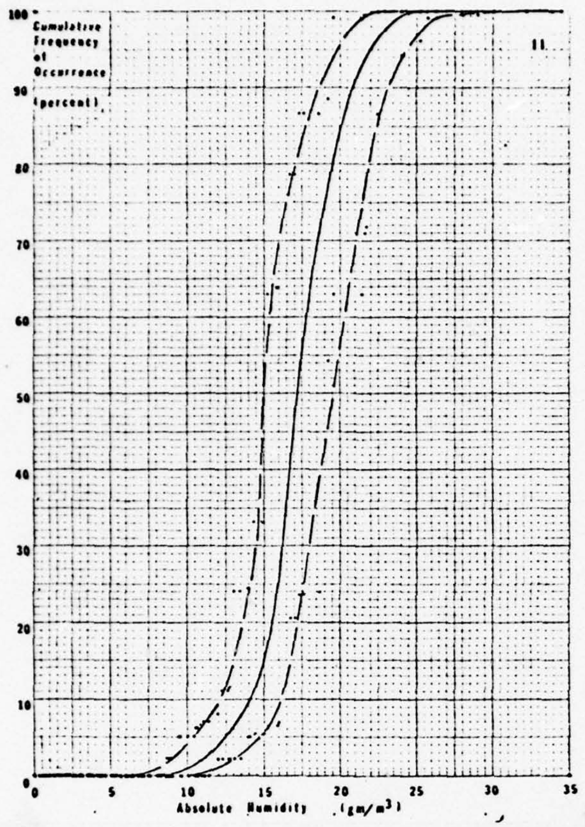
Cumulative Frequency of Occurrence (percent)
1D
Absolute Humidity (gm/m3)

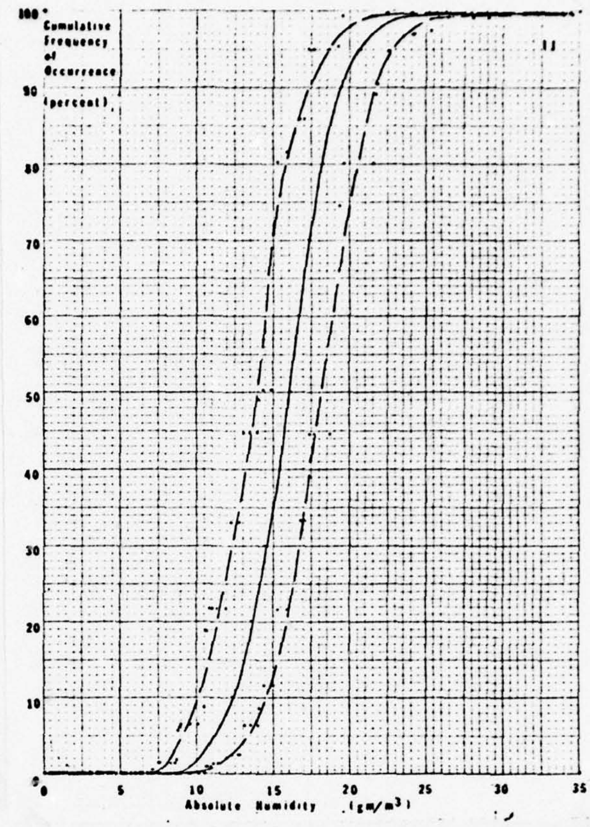

1E
Cumulative Frequency of Occurrence (percent)
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

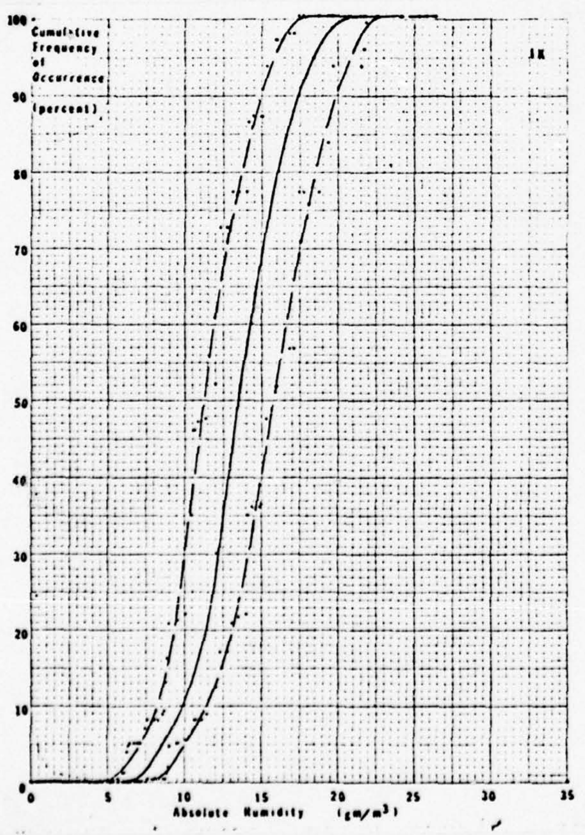

1F
Cumulative Frequency of Occurrence (percent)
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

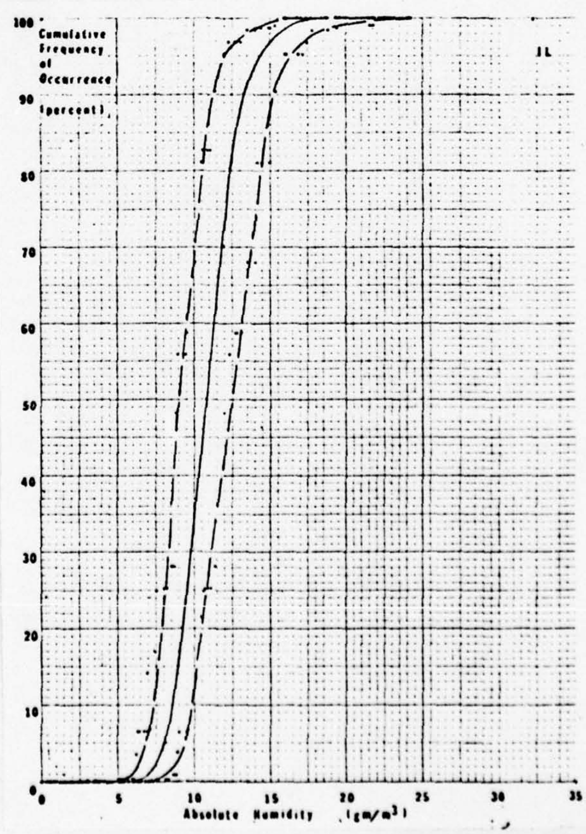

1G
Cumulative Frequency of Occurrence (percent)
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

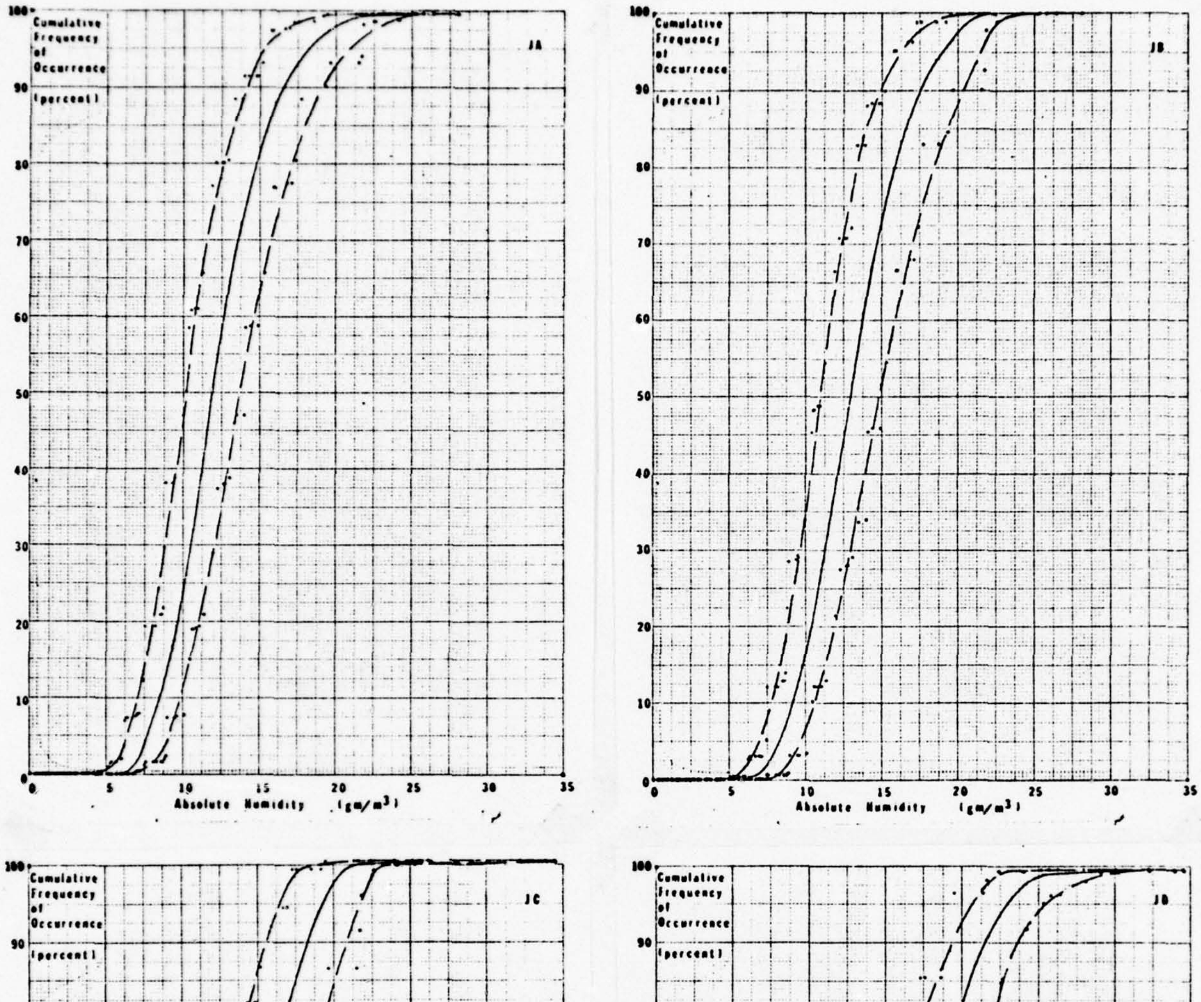

1H
Cumulative Frequency of Occurrence (percent)
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
1I
Absolute Humidity (gm/m³)

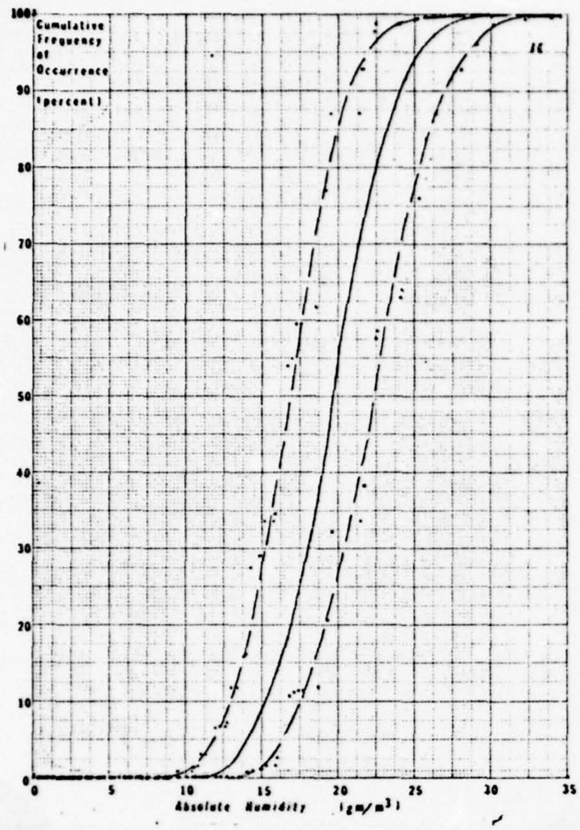

Cumulative Frequency of Occurrence (percent)
1J
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
1K
Absolute Humidity (gm/m³)

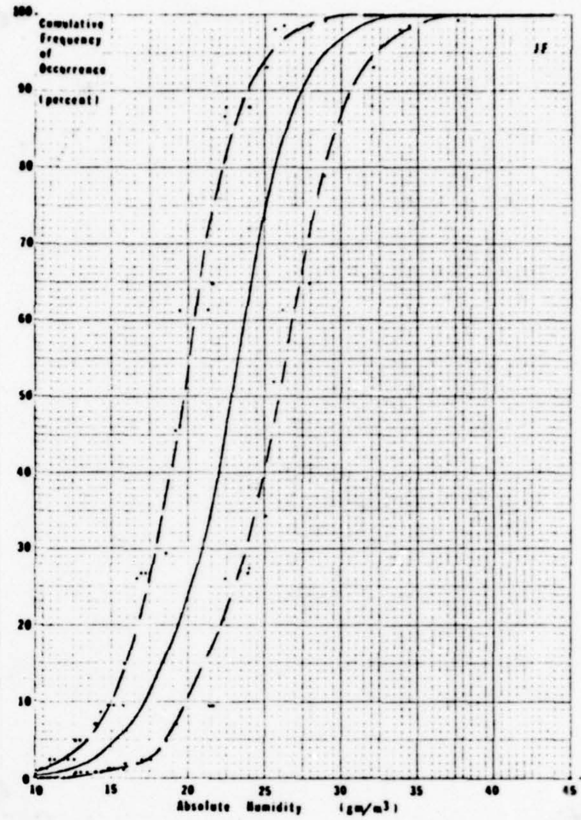

Cumulative Frequency of Occurrence (percent)
1L
Absolute Humidity (gm/m³)



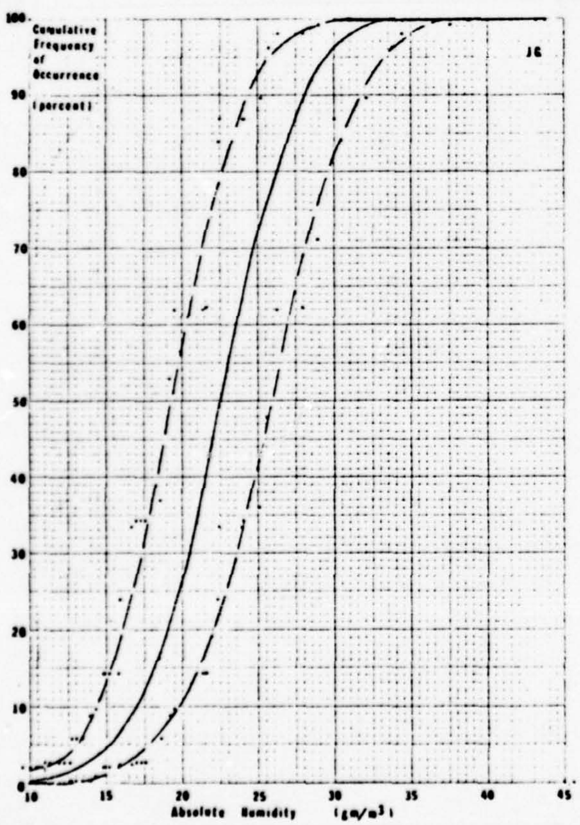
Cumulative Frequency of Occurrence (percent)
JA
JB
JC
JD
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100



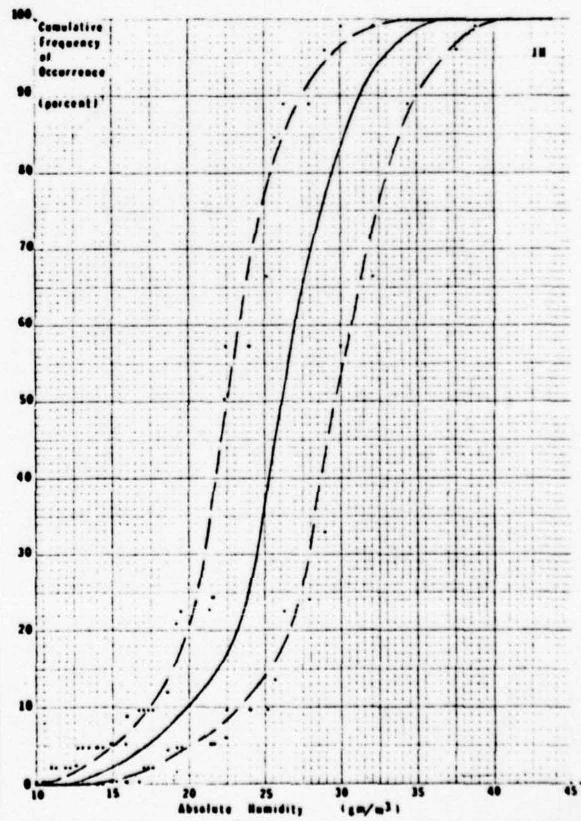
Cumulative Frequency of Occurrence (percent)
JE
Absolute Humidity (gm/m3)



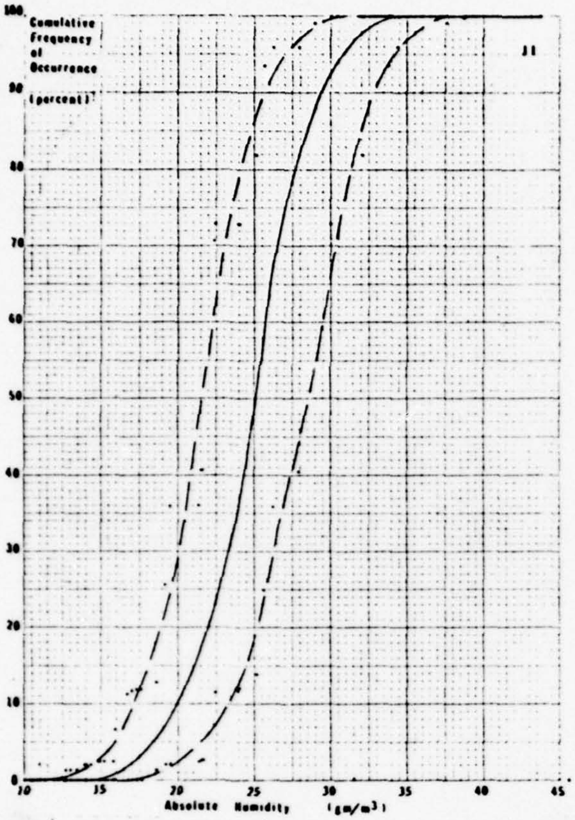
Cumulative Frequency of Occurrence (percent)
JF
Absolute Humidity (gm/m3)



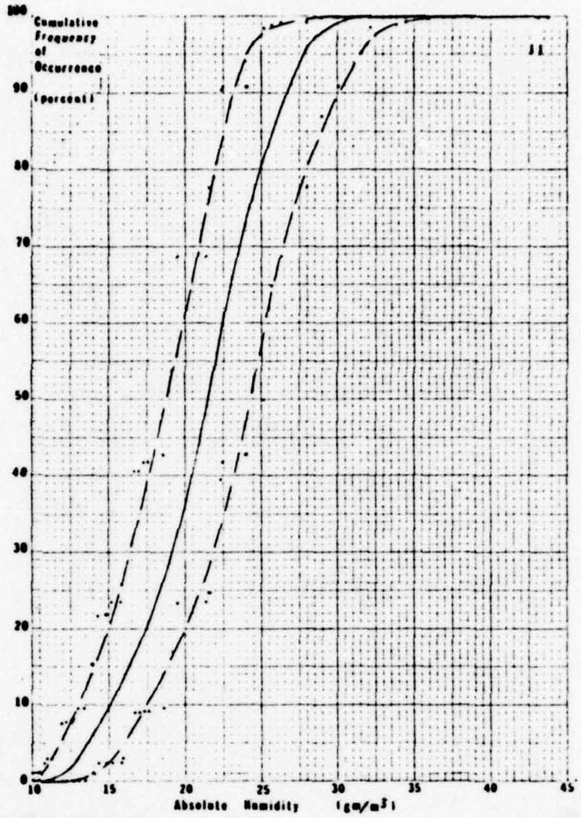
Cumulative Frequency of Occurrence (percent)
JG
Absolute Humidity (gm/m3)



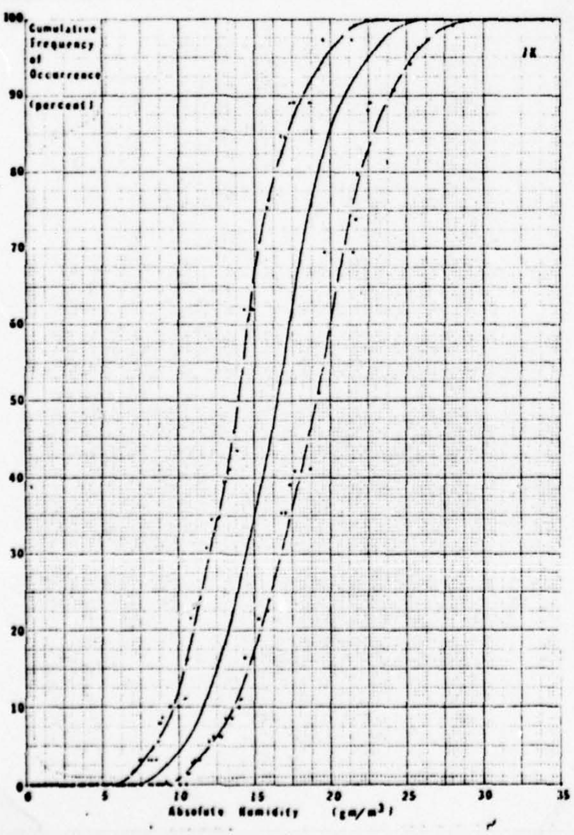
Cumulative Frequency of Occurrence (percent)
JH
Absolute Humidity (gm/m3)



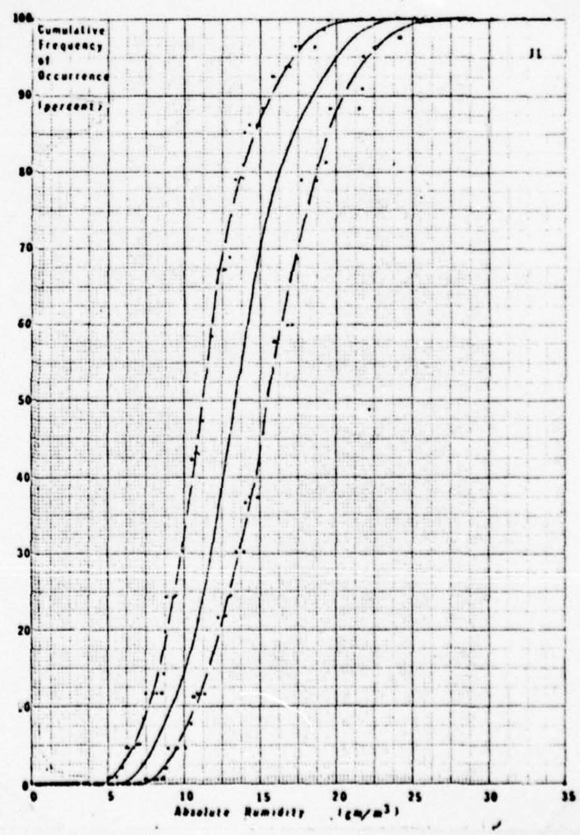
Cumulative Frequency of Occurrence (percent)
JI
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m³)



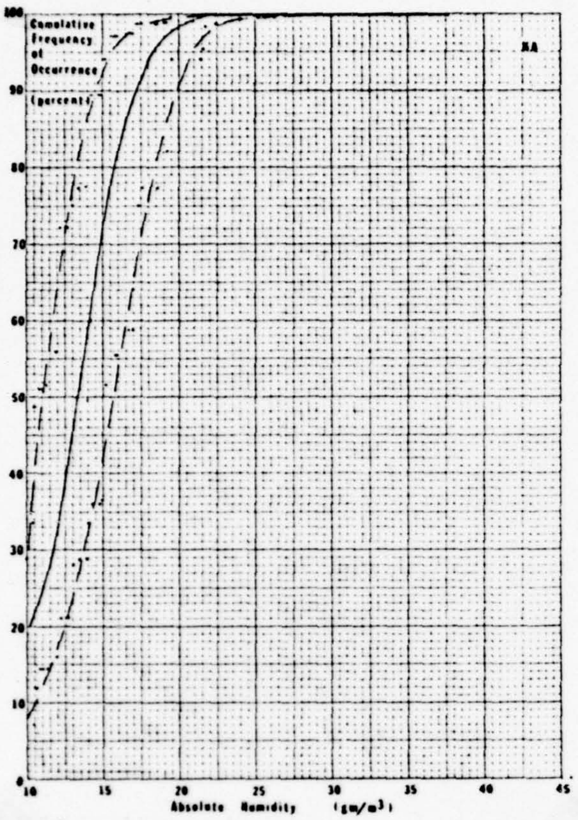
Cumulative Frequency of Occurrence (percent)
JJ
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m³)

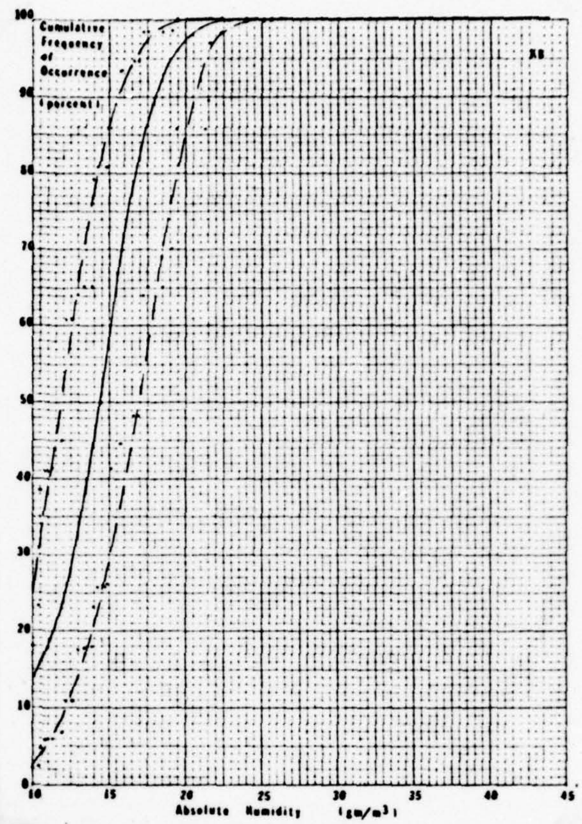


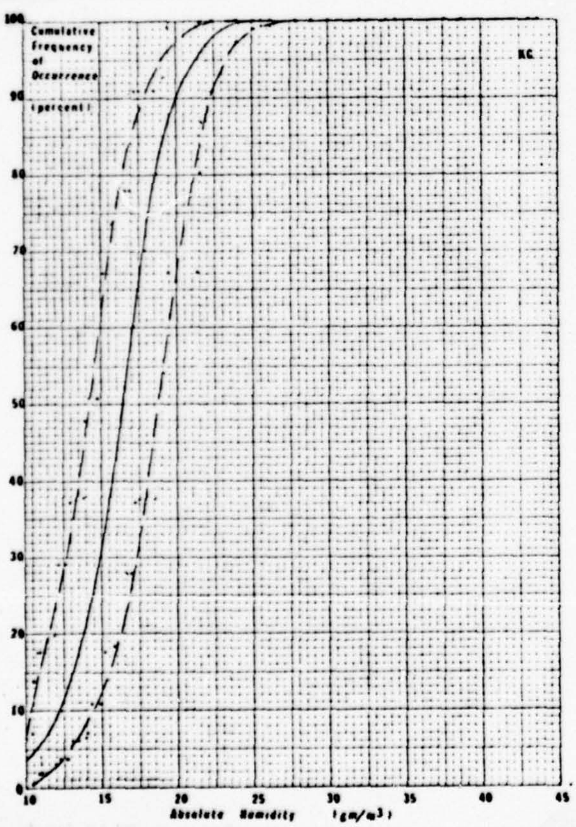
Cumulative Frequency of Occurrence (percent)
JK
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

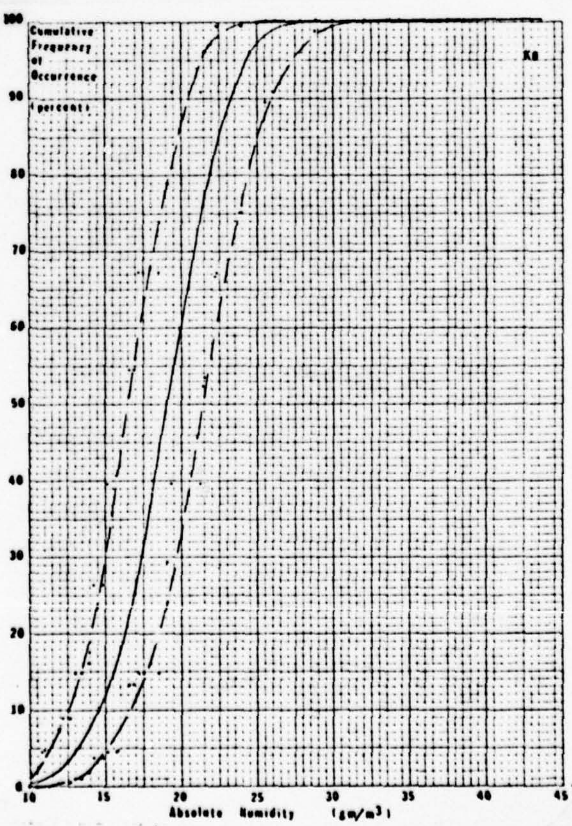


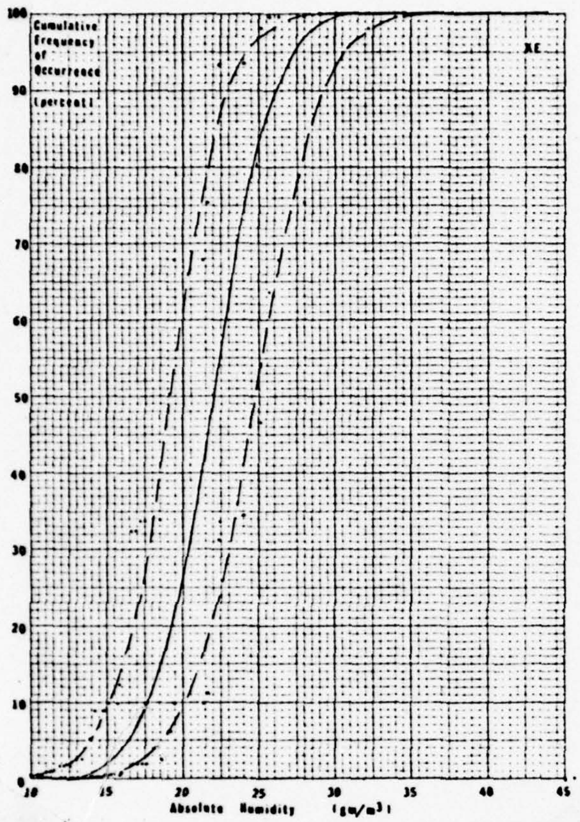
Cumulative Frequency of Occurrence (percent)
JL
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m³)

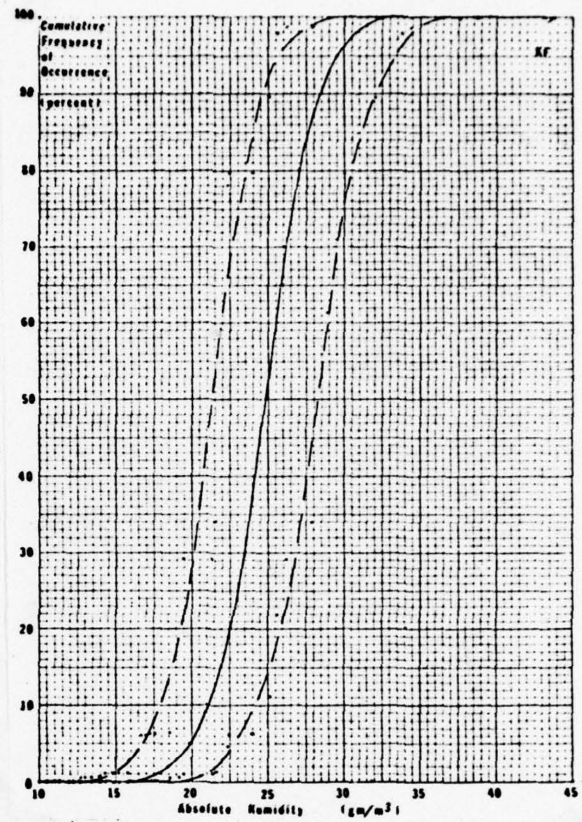

Cumulative Frequency of Occurrence (percent)
XA
Absolute Humidity (gm/m3)

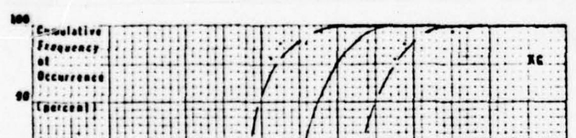

Cumulative Frequency of Occurrence (percent)
XB
Absolute Humidity (gm/m3)

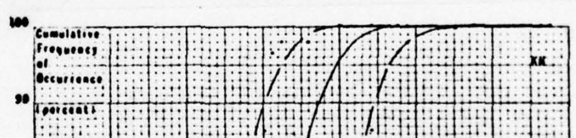

Cumulative Frequency of Occurrence (percent)
XC
Absolute Humidity (gm/m3)

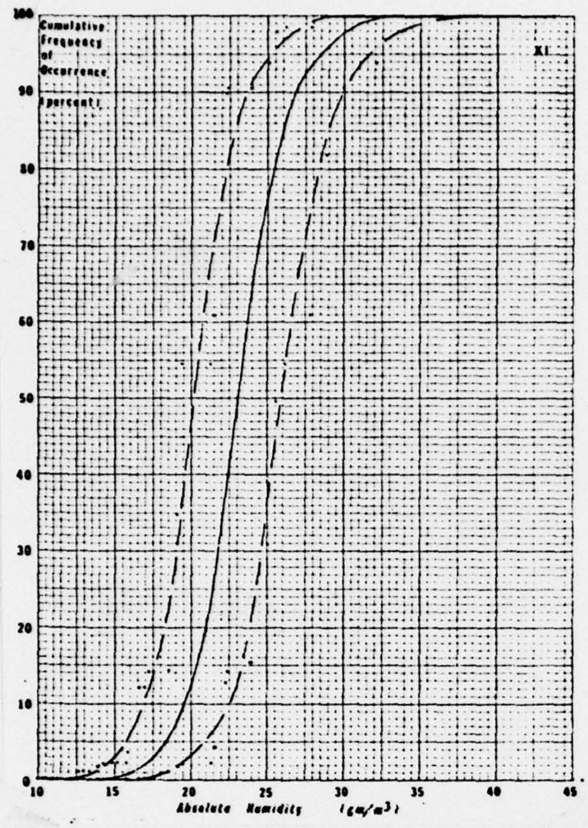

Cumulative Frequency of Occurrence (percent)
XD
Absolute Humidity (gm/m3)


Cumulative Frequency of Occurrence (percent)
XE
Absolute Humidity (gm/m³)

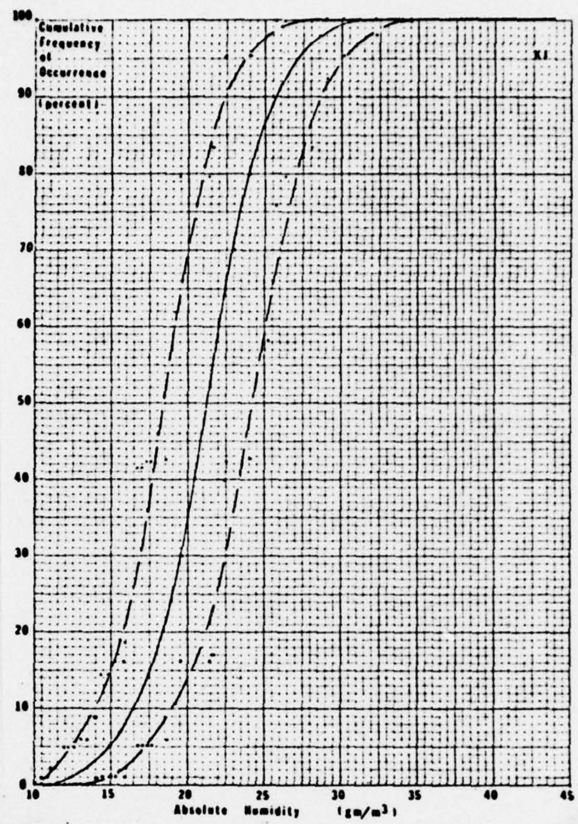

Cumulative Frequency of Occurrence (percent)
XF
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
XG
Absolute Humidity (gm/m³)

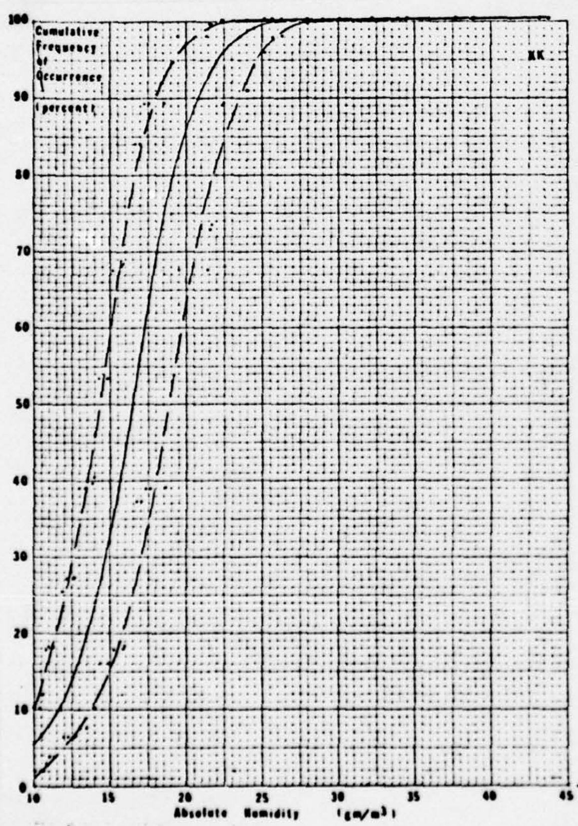

Cumulative Frequency of Occurrence (percent)
XK
Absolute Humidity (gm/m³)



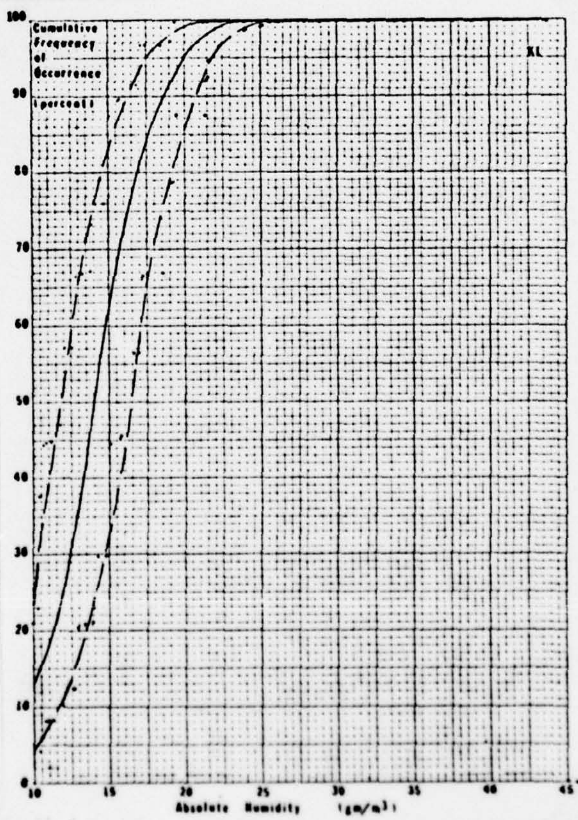
Cumulative Frequency of Occurrence (percent)
XI
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m^3)



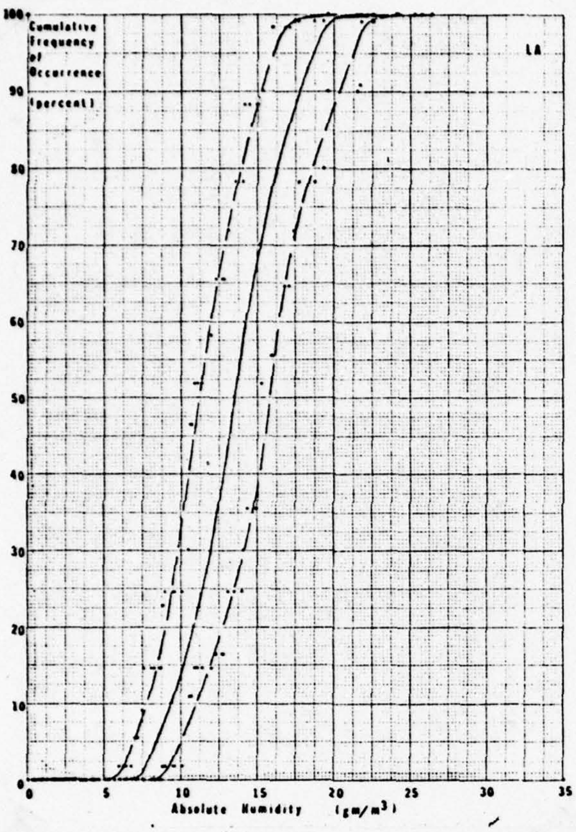
Cumulative Frequency of Occurrence (percent)
XJ
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m^3)

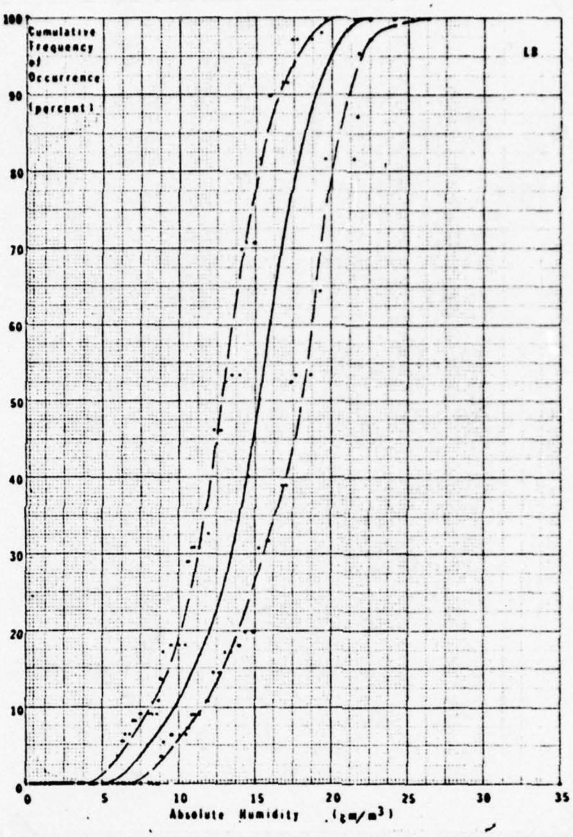


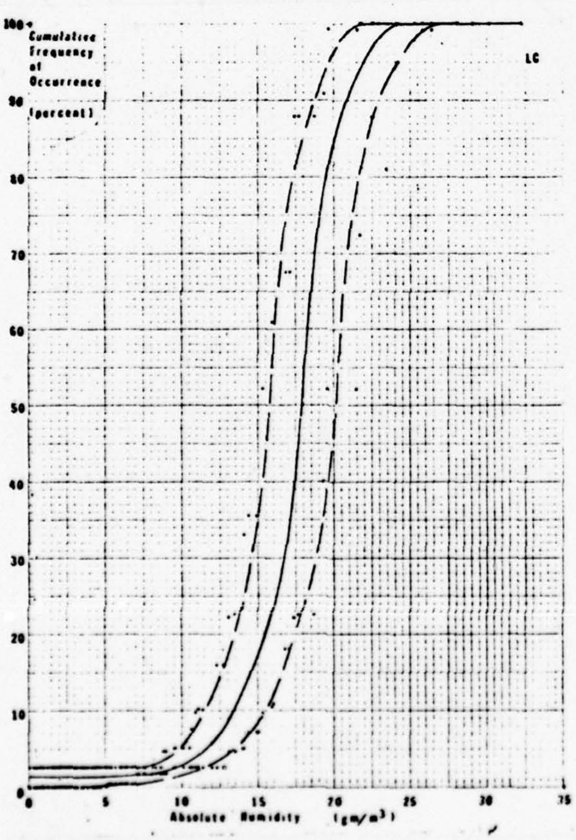
Cumulative Frequency of Occurrence (percent)
XK
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m^3)

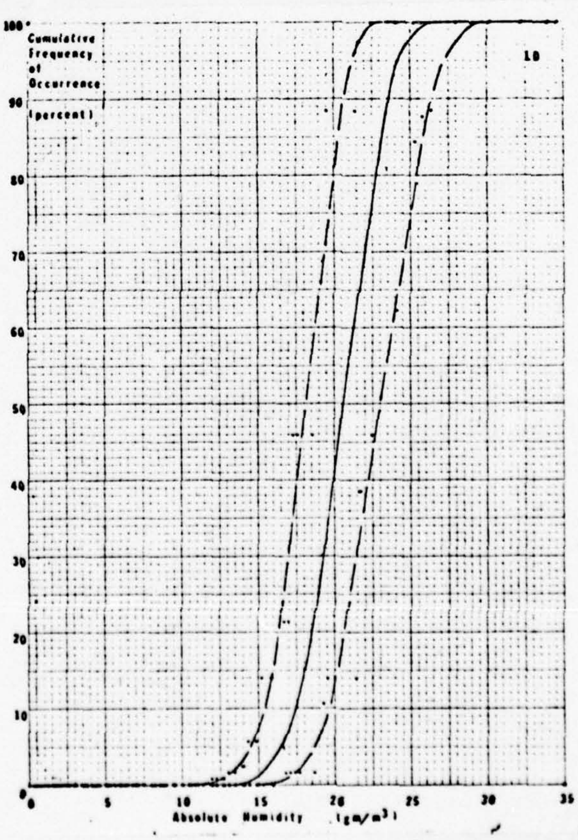


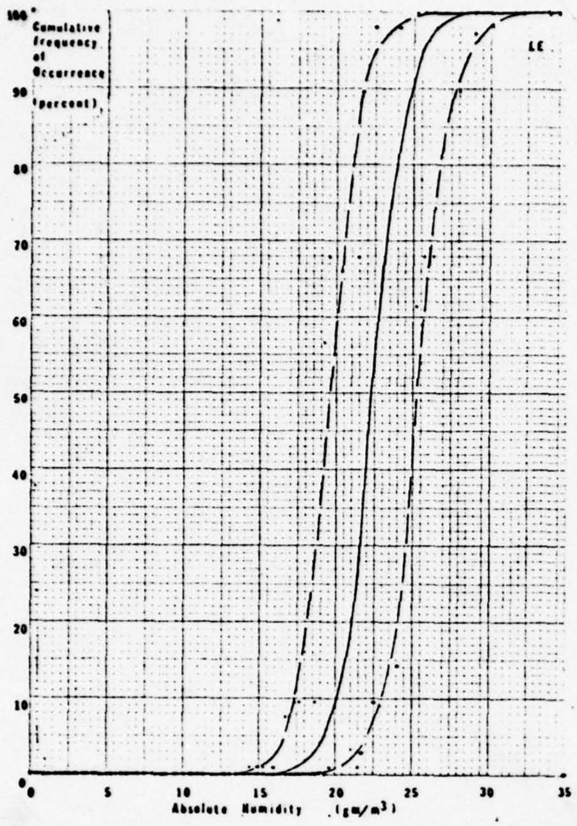
Cumulative Frequency of Occurrence (percent)
XL
100
90
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
Absolute Humidity (gm/m^3)

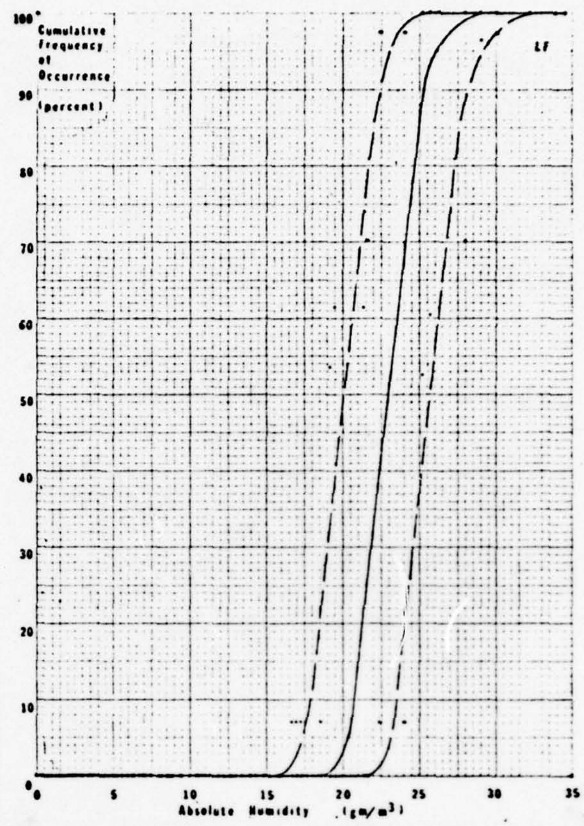

Cumulative Frequency of Occurrence (percent)
LA
Absolute Humidity (gm/m³)

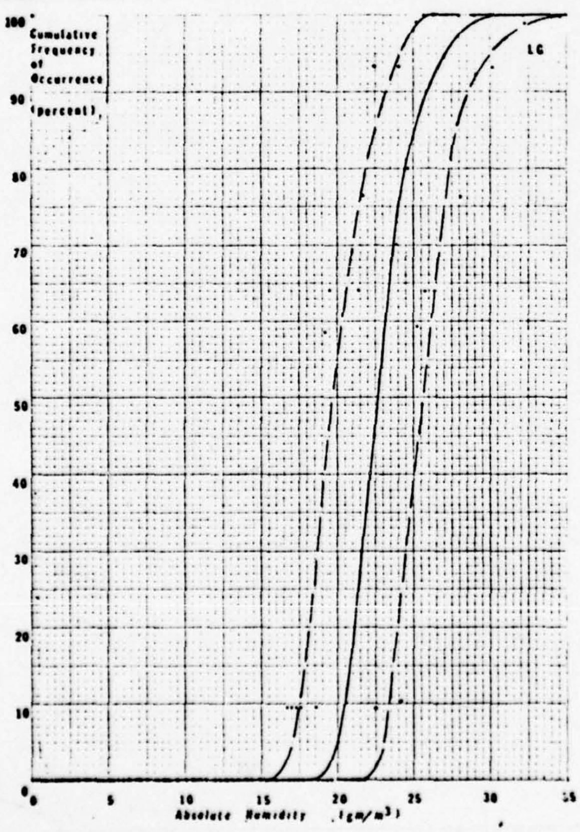

Cumulative Frequency of Occurrence (percent)
LB
Absolute Humidity (gm/m³)

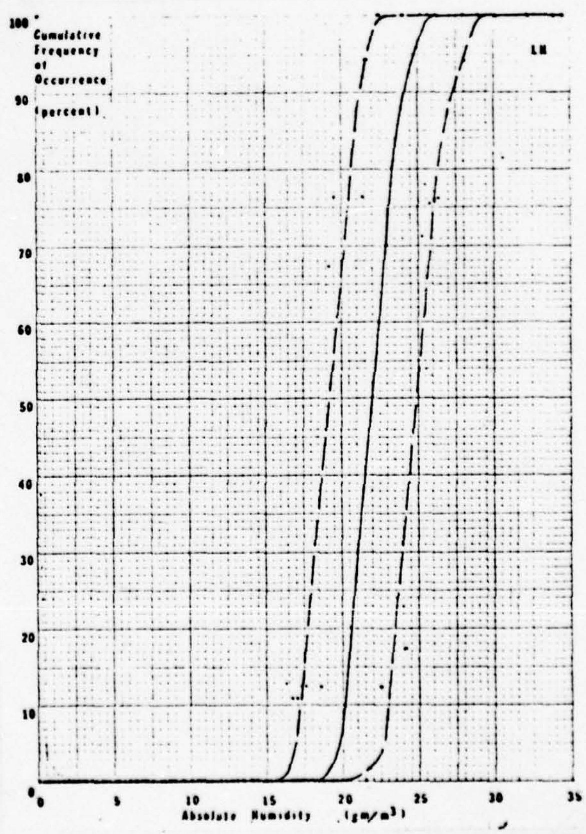

Cumulative Frequency of Occurrence (percent)
LC
Absolute Humidity (gm/m³)

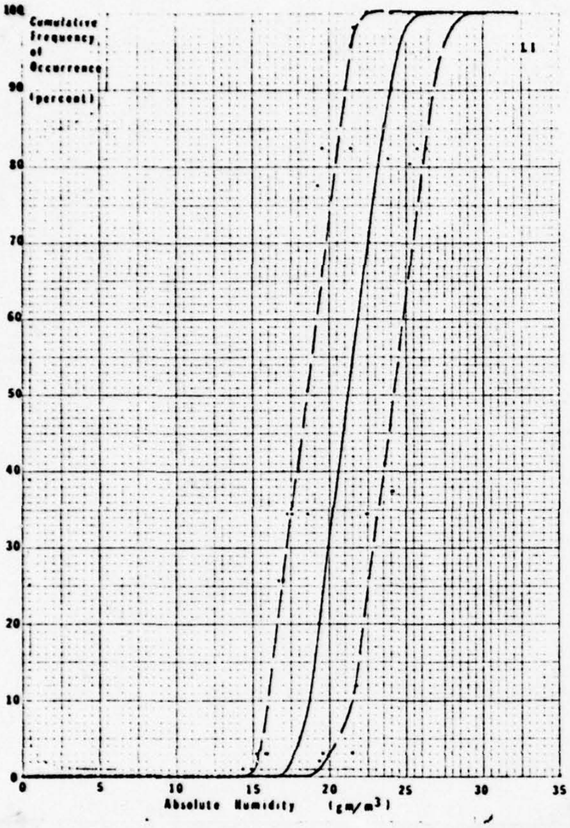

Cumulative Frequency of Occurrence (percent)
LD
Absolute Humidity (gm/m³)


LE
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100

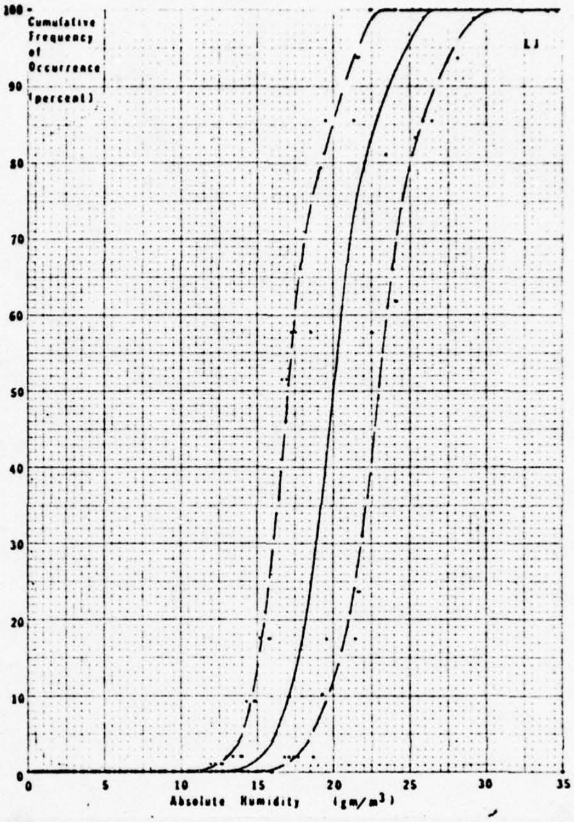

LF
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100


LG
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100

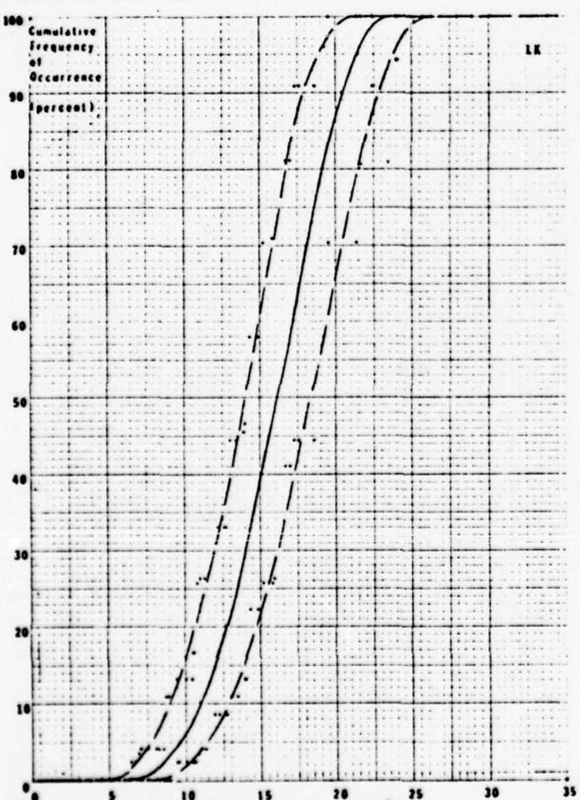

LH
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m³)
0
5
10
15
20
25
30
35
10
20
30
40
50
60
70
80
90
100



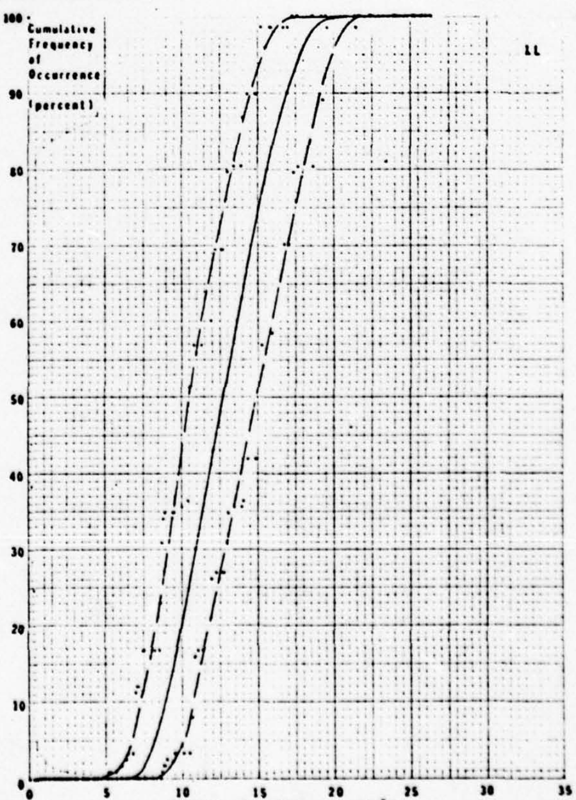
Cumulative Frequency of Occurrence (percent)
LI
Absolute Humidity (gm/m³)



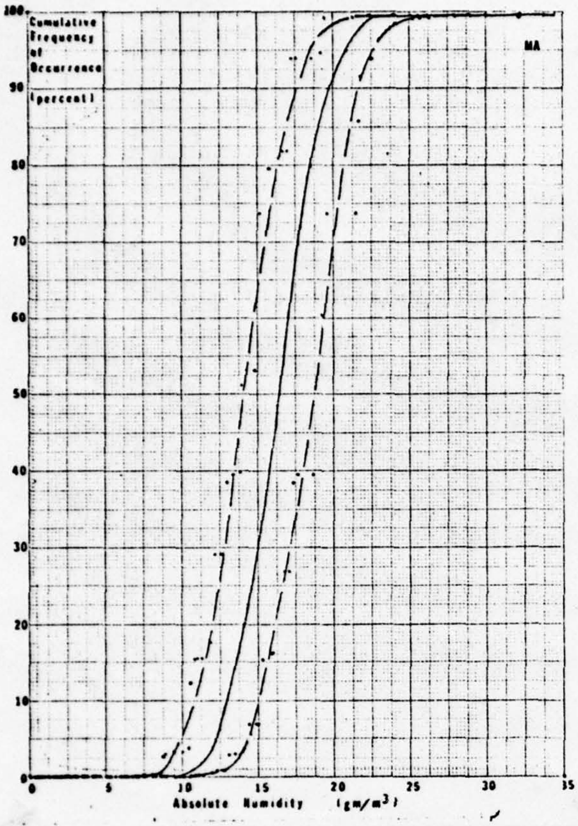
Cumulative Frequency of Occurrence (percent)
LJ
Absolute Humidity (gm/m³)



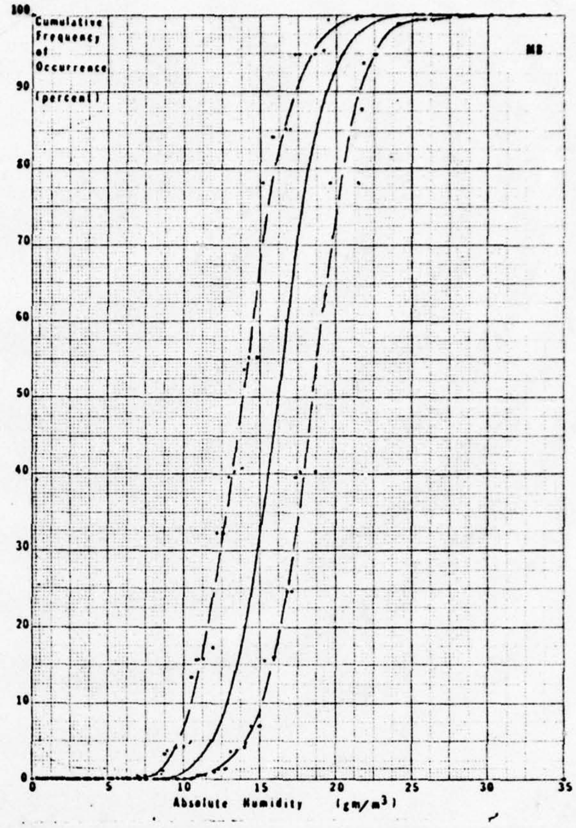
Cumulative Frequency of Occurrence (percent)
LK
Absolute Humidity (gm/m³)



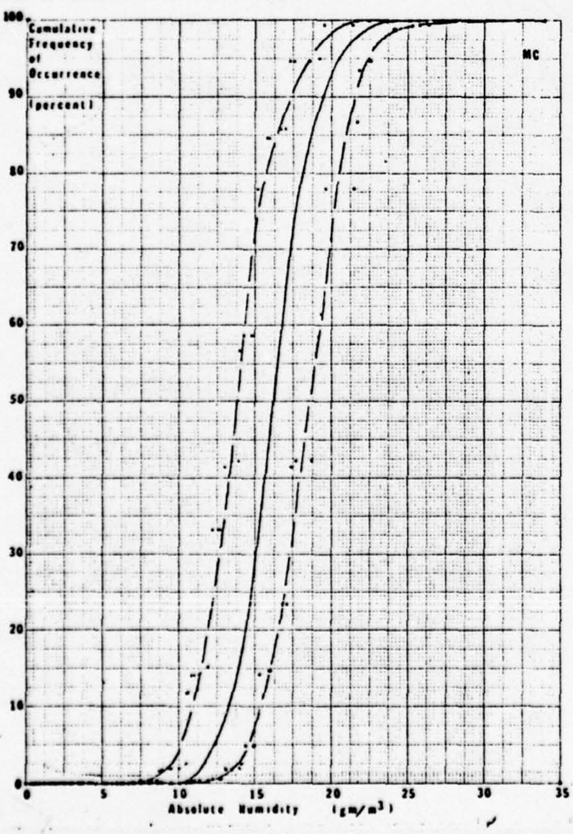
Cumulative Frequency of Occurrence (percent)
LL
Absolute Humidity (gm/m³)



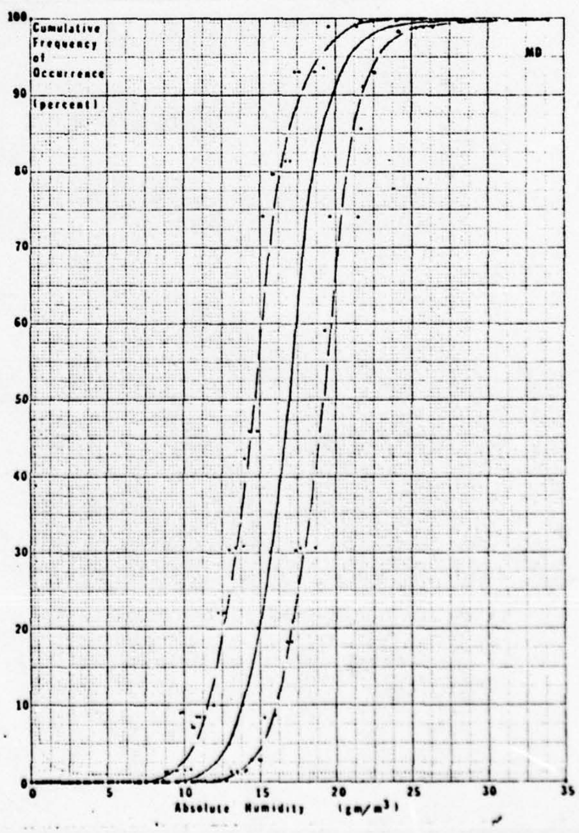
Cumulative Frequency of Occurrence (percent)
MA
Absolute Humidity (gm/m³)



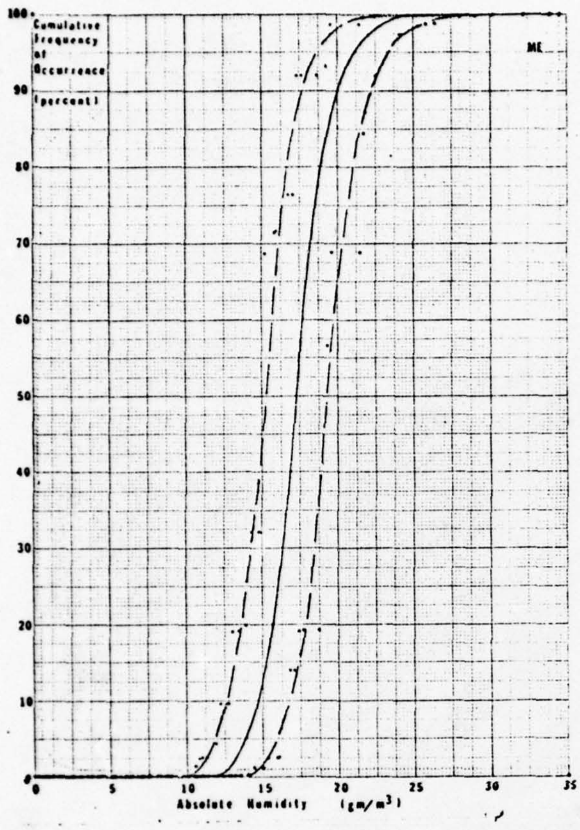
Cumulative Frequency of Occurrence (percent)
MB
Absolute Humidity (gm/m³)

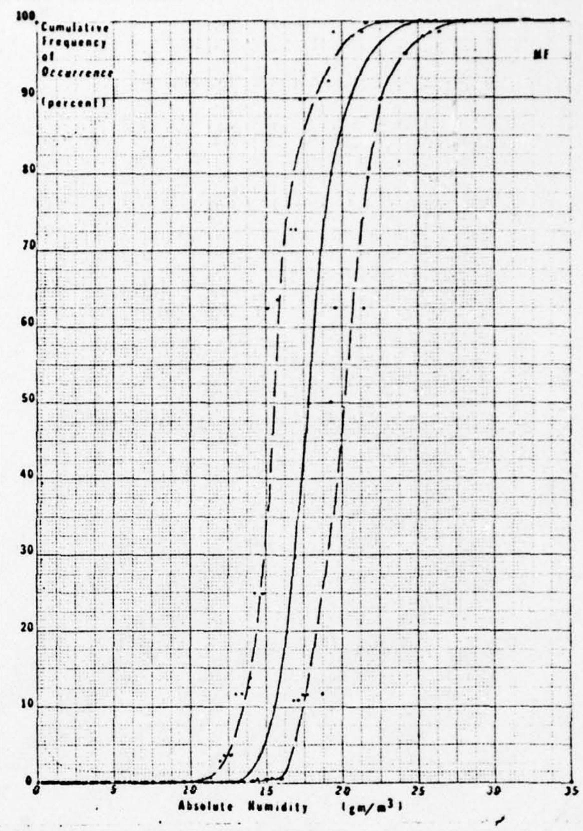


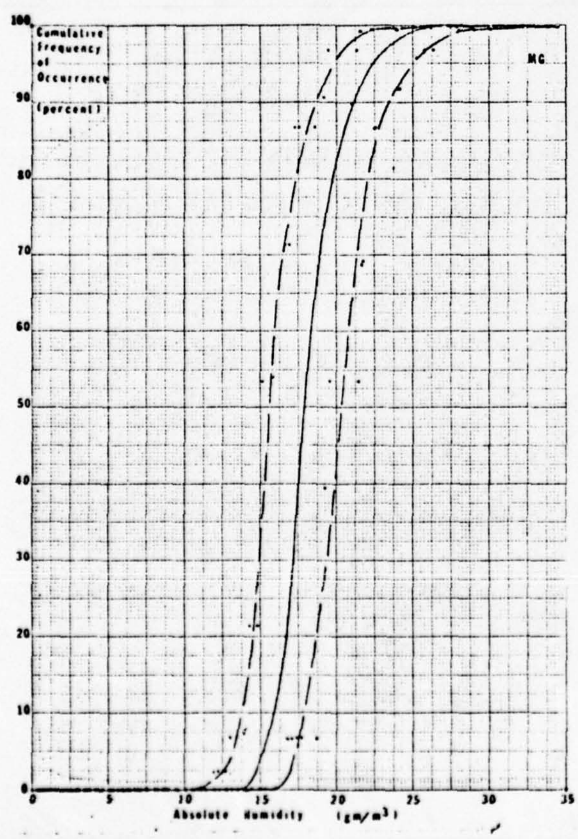
Cumulative Frequency of Occurrence (percent)
MC
Absolute Humidity (gm/m³)

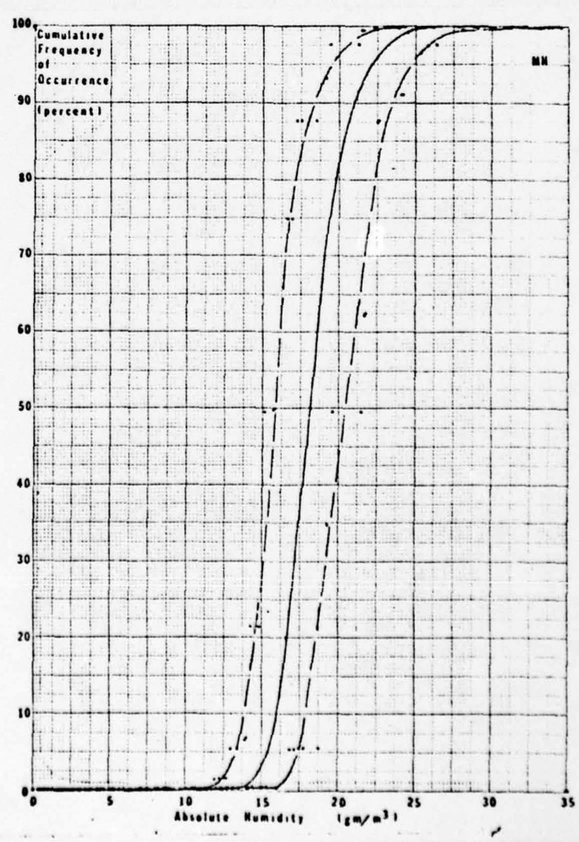


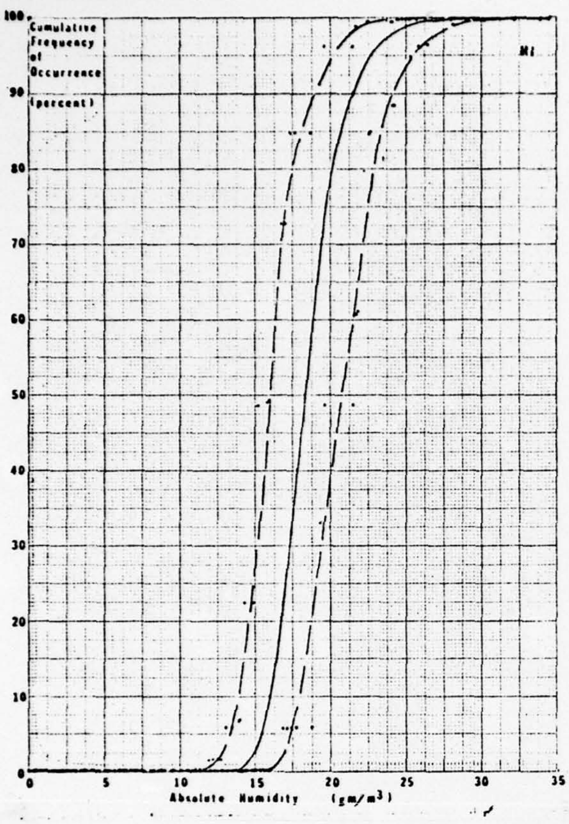
Cumulative Frequency of Occurrence (percent)
MD
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
ME
Absolute Humidity (gm/m³)

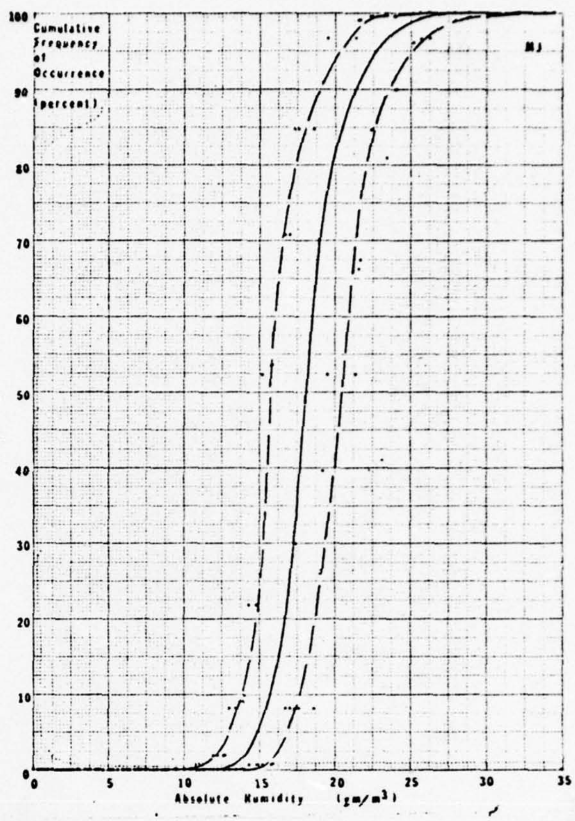

Cumulative Frequency of Occurrence (percent)
MF
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
MG
Absolute Humidity (gm/m³)

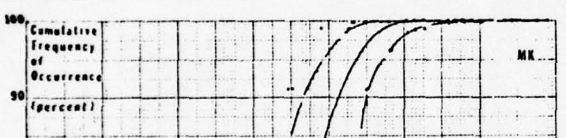

Cumulative Frequency of Occurrence (percent)
MH
Absolute Humidity (gm/m³)



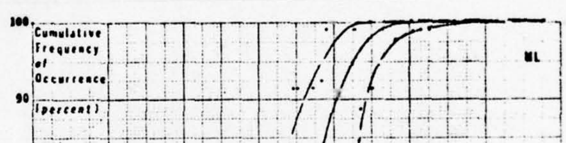
Cumulative Frequency of Occurrence (percent)
MI
Absolute Humidity (gm/m³)



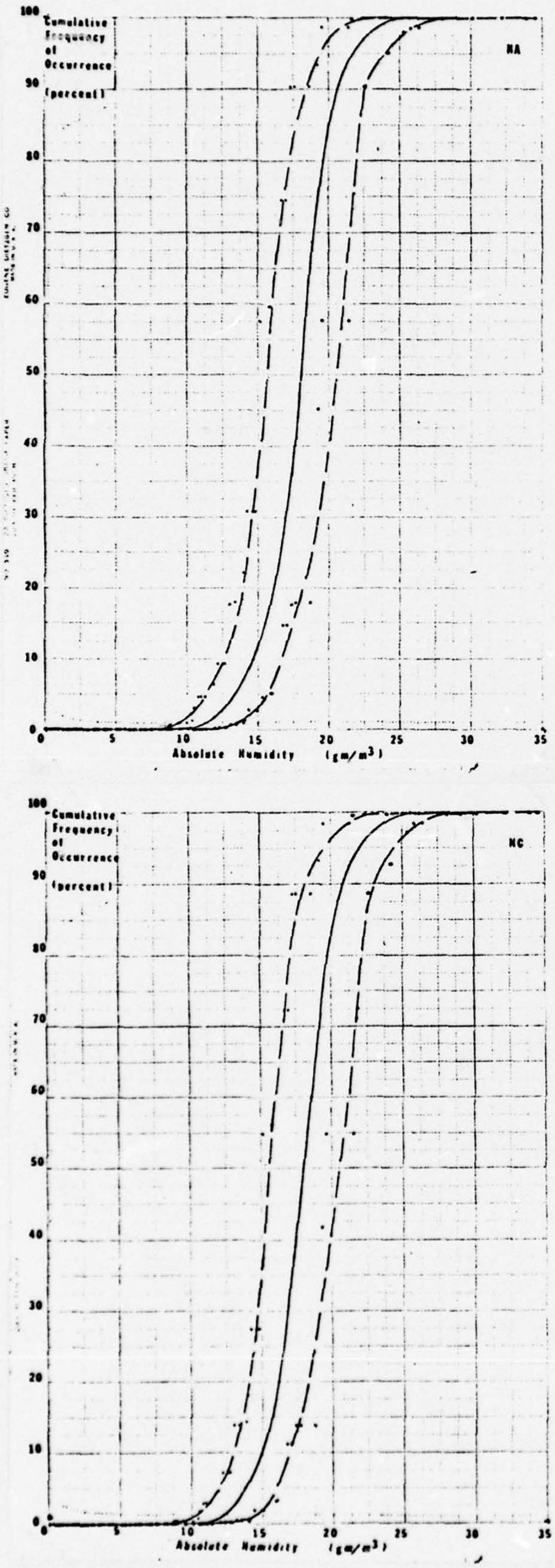
Cumulative Frequency of Occurrence (percent)
MJ
Absolute Humidity (gm/m³)



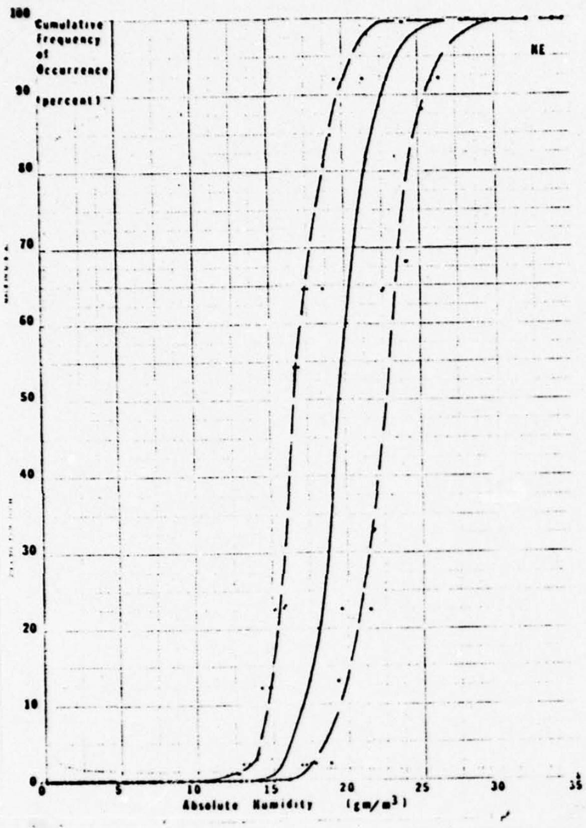
Cumulative Frequency of Occurrence (percent)
MK
Absolute Humidity (gm/m³)

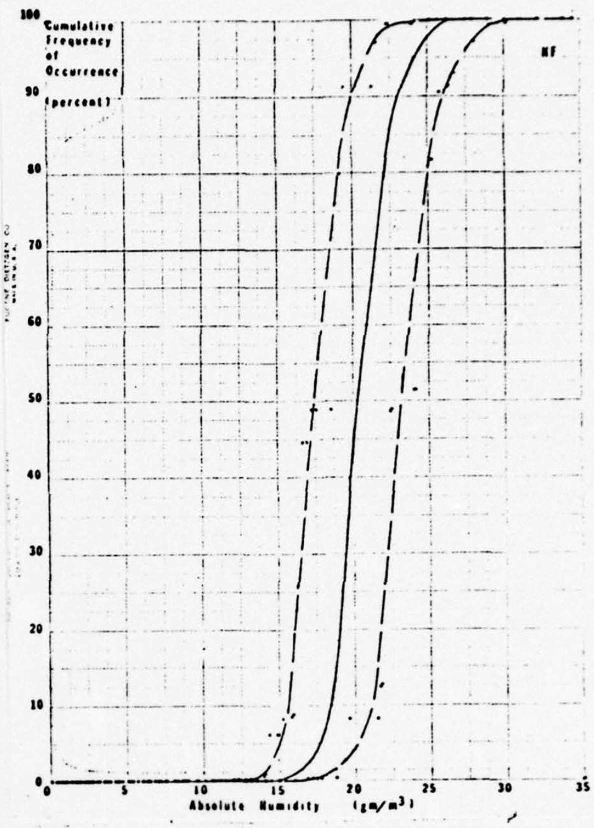


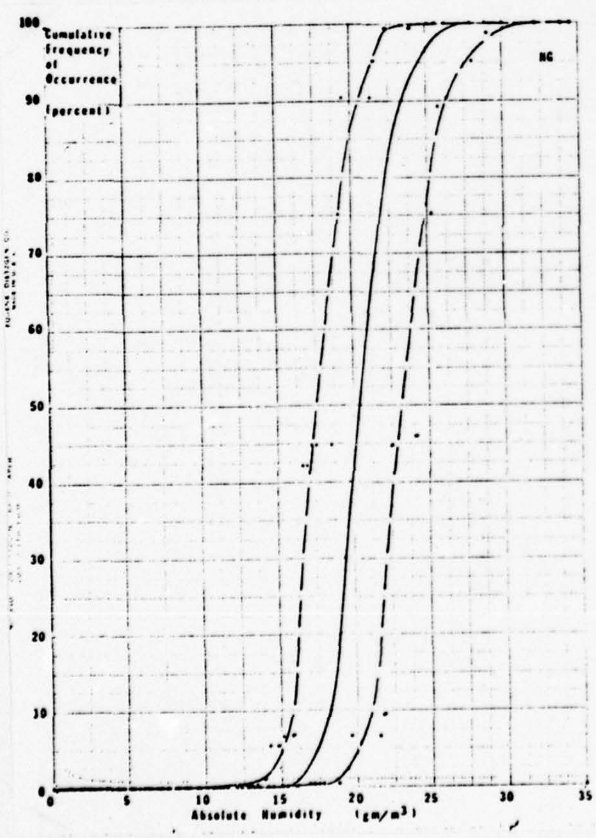
Cumulative Frequency of Occurrence (percent)
ML
Absolute Humidity (gm/m³)

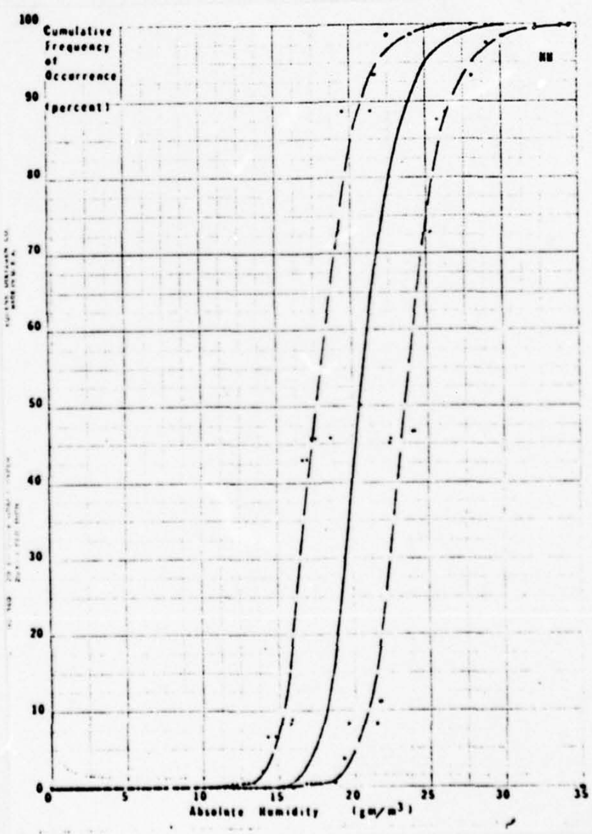


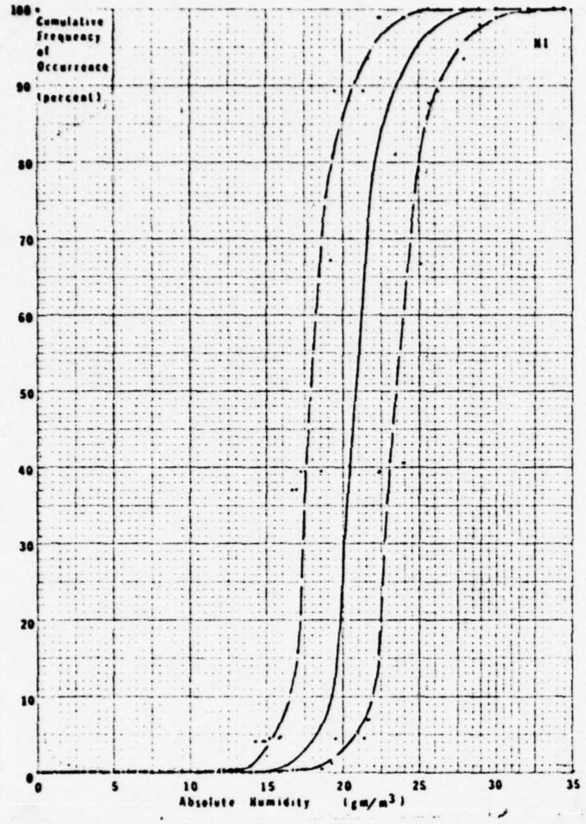
Cumulative Frequency of Occurrence (percent)
NA
NB
NC
ND
Absolute Humidity (gm/m3)

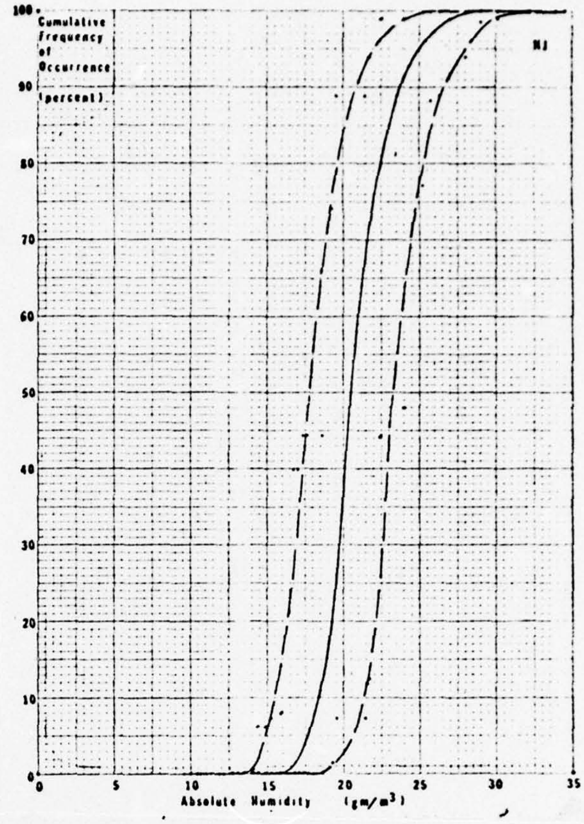

Cumulative Frequency of Occurrence (percent)
NE
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

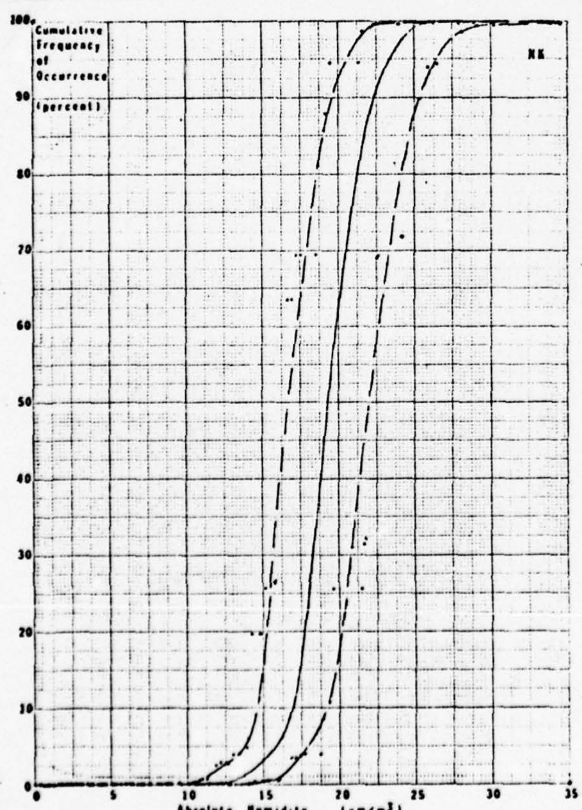

Cumulative Frequency of Occurrence (percent)
NF
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

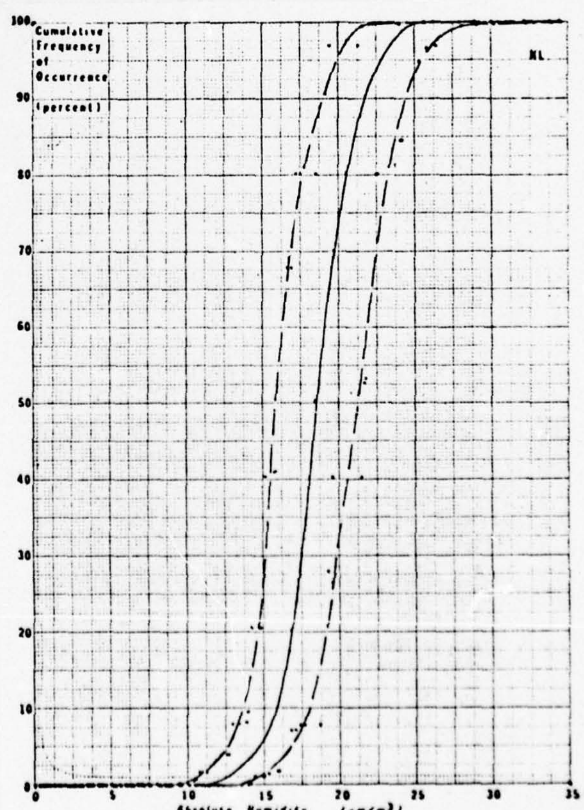

Cumulative Frequency of Occurrence (percent)
NG
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

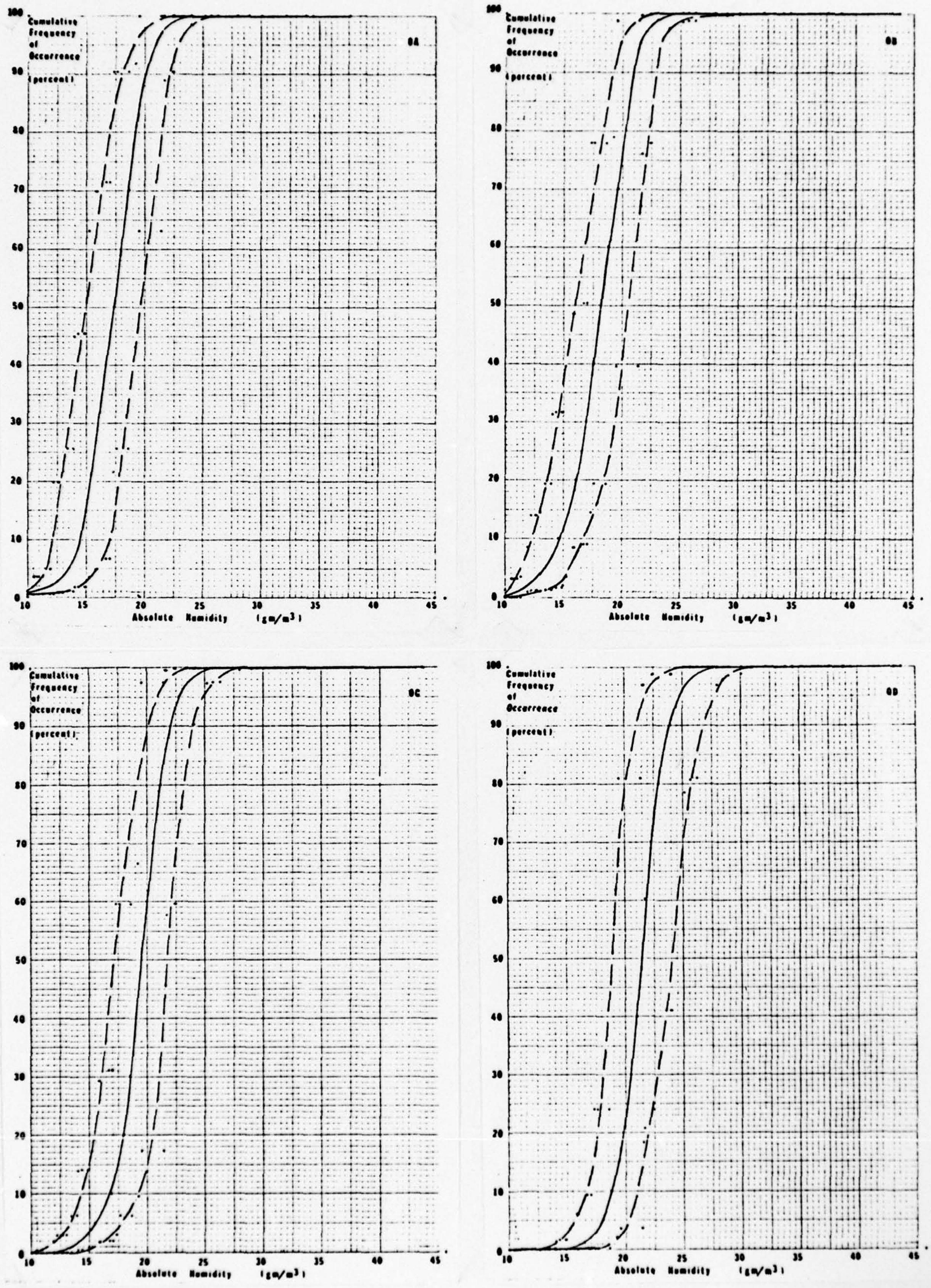

Cumulative Frequency of Occurrence (percent)
NH
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
35
Absolute Humidity (gm/m3)

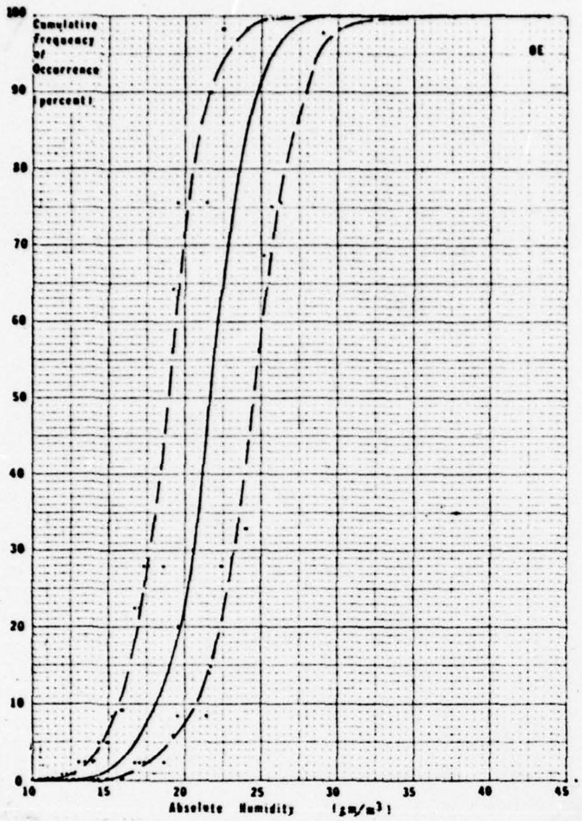

Cumulative Frequency of Occurrence (percent)
NI
Absolute Humidity (gm/m3)

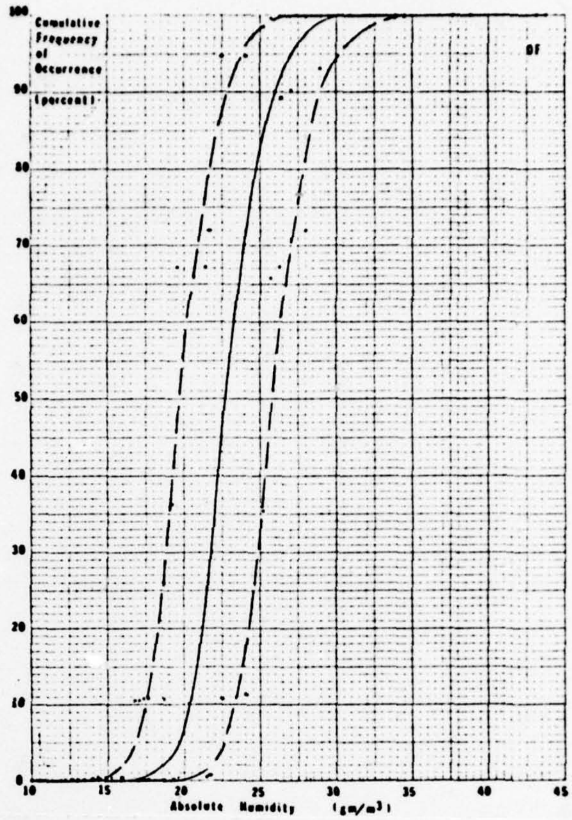

Cumulative Frequency of Occurrence (percent)
NJ
Absolute Humidity (gm/m3)

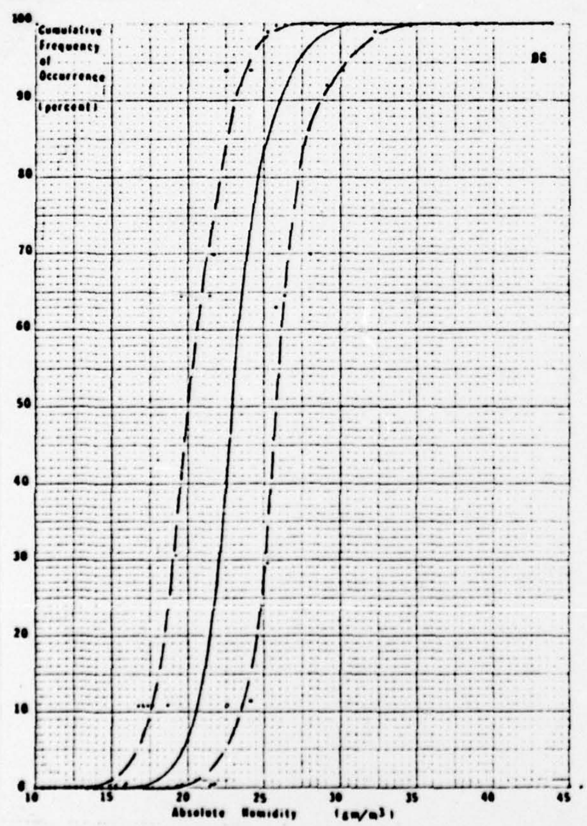

Cumulative Frequency of Occurrence (percent)
NK
Absolute Humidity (gm/m3)

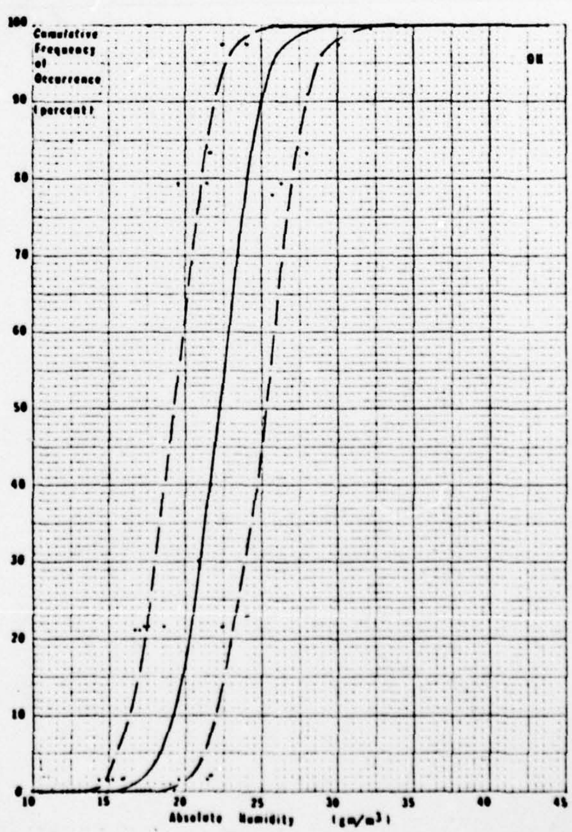

Cumulative Frequency of Occurrence (percent)
NL
Absolute Humidity (gm/m3)

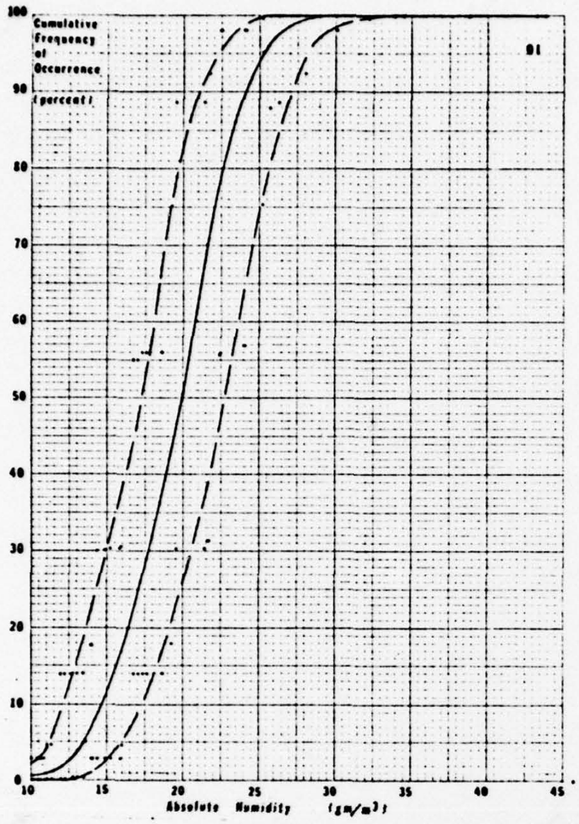

Cumulative Frequency of Occurrence (percent)
8A
Absolute Humidity (gm/m3)
Cumulative Frequency of Occurrence (percent)
8B
Absolute Humidity (gm/m3)
Cumulative Frequency of Occurrence (percent)
8C
Absolute Humidity (gm/m3)
Cumulative Frequency of Occurrence (percent)
8D
Absolute Humidity (gm/m3)

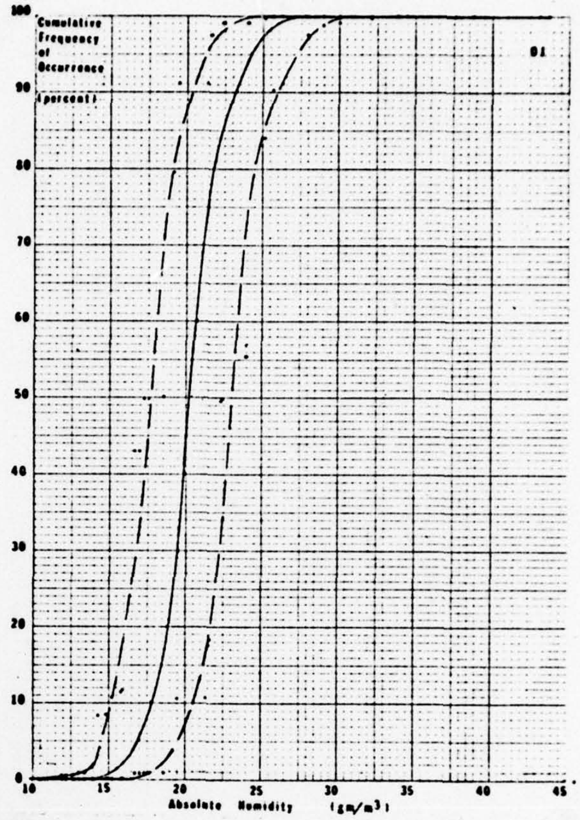

Cumulative Frequency of Occurrence (percent)
8E
Absolute Humidity (gm/m^3)

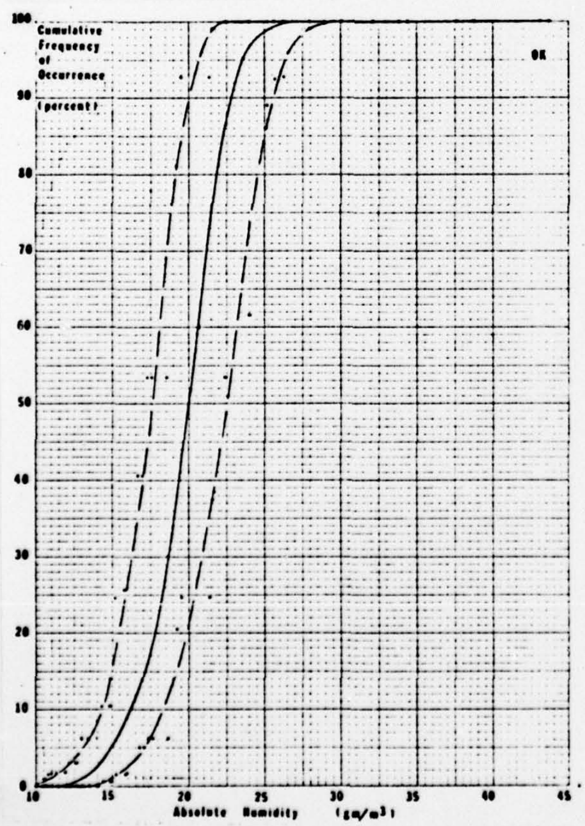

Cumulative Frequency of Occurrence (percent)
8F
Absolute Humidity (gm/m^3)

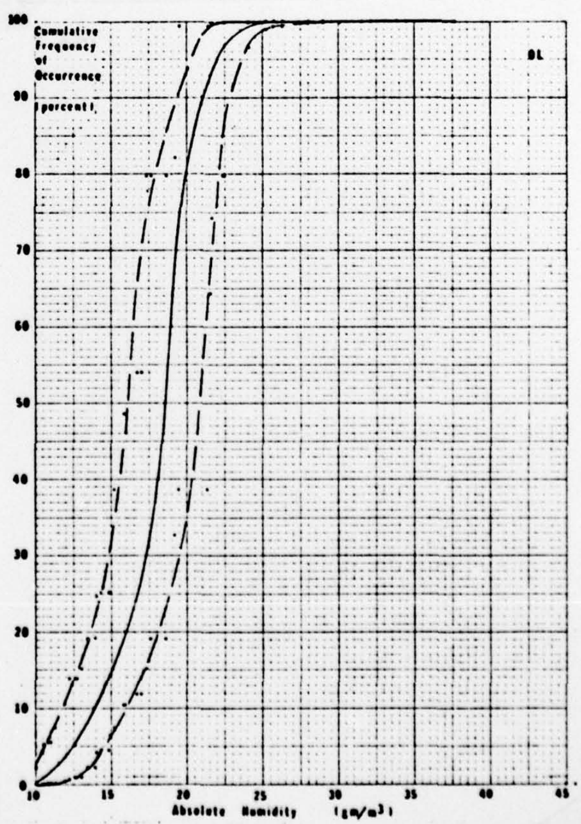

Cumulative Frequency of Occurrence (percent)
8G
Absolute Humidity (gm/m^3)

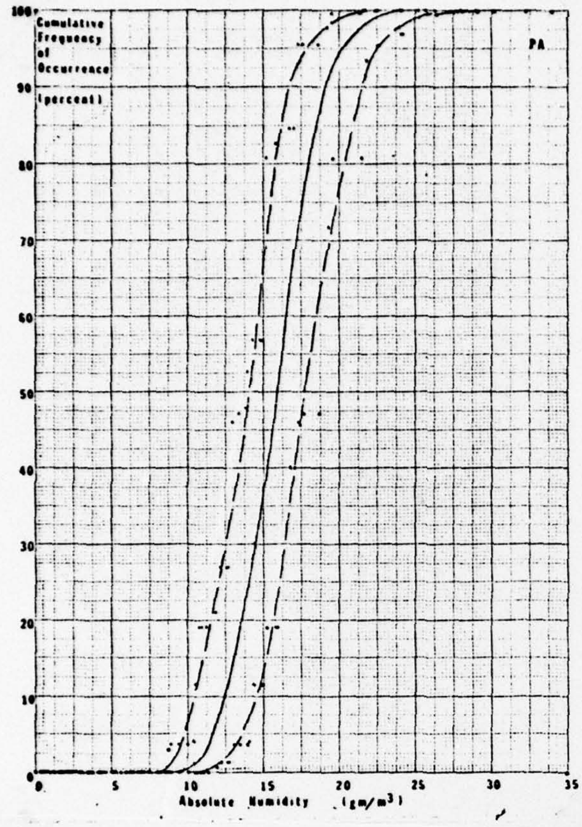

Cumulative Frequency of Occurrence (percent)
8H
Absolute Humidity (gm/m^3)


Cumulative Frequency of Occurrence (percent)
DI
Absolute Humidity (gm/m³)

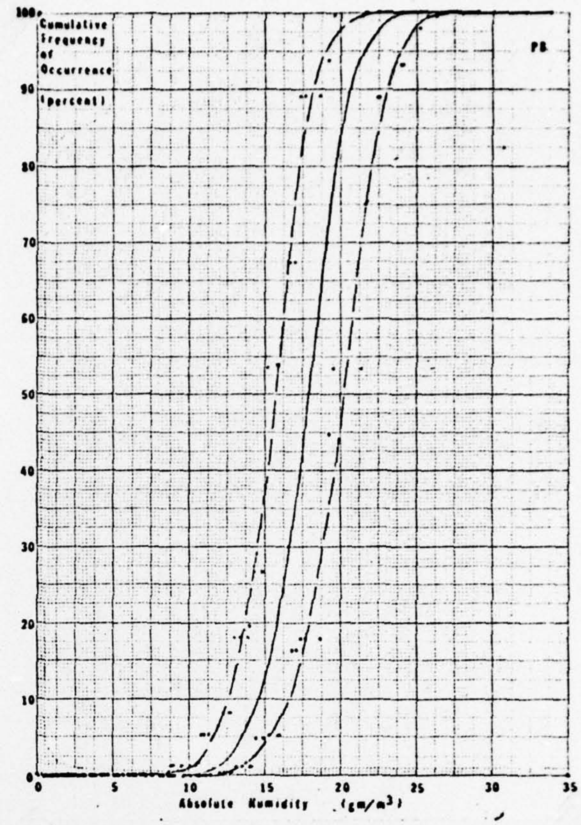

Cumulative Frequency of Occurrence (percent)
DJ
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
DK
Absolute Humidity (gm/m³)

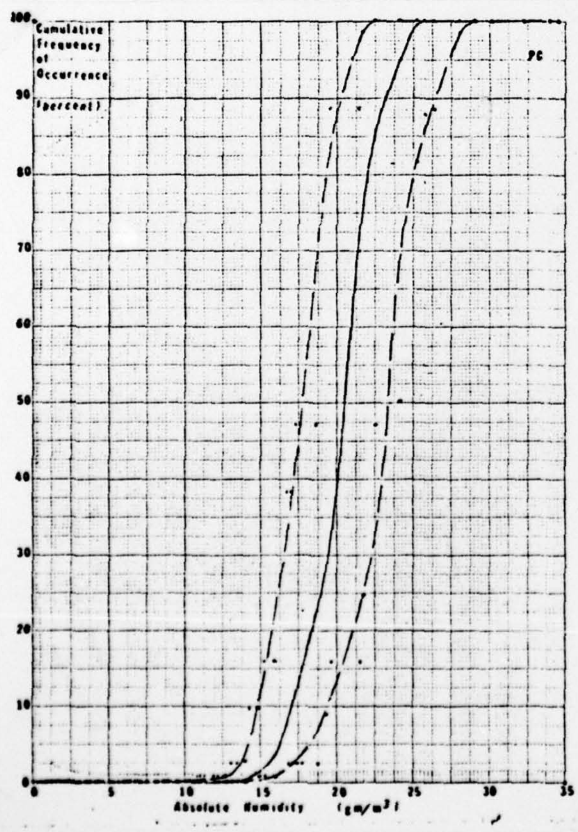

Cumulative Frequency of Occurrence (percent)
DL
Absolute Humidity (gm/m³)



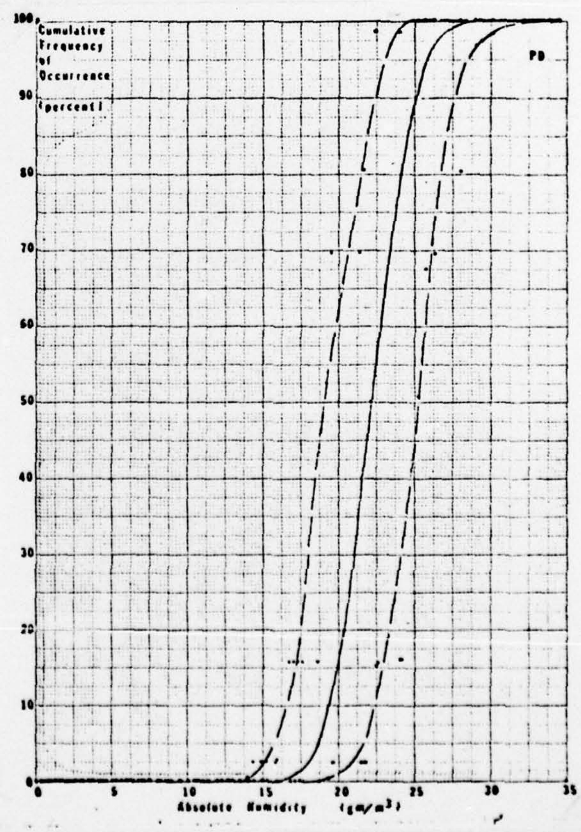
Cumulative Frequency of Occurrence (percent)
PA
Absolute Humidity (gm/m³)



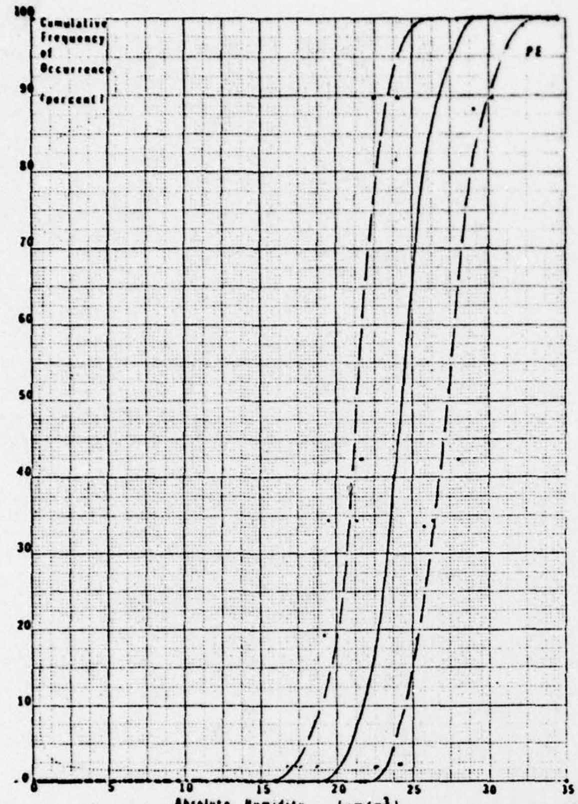
Cumulative Frequency of Occurrence (percent)
PB
Absolute Humidity (gm/m³)

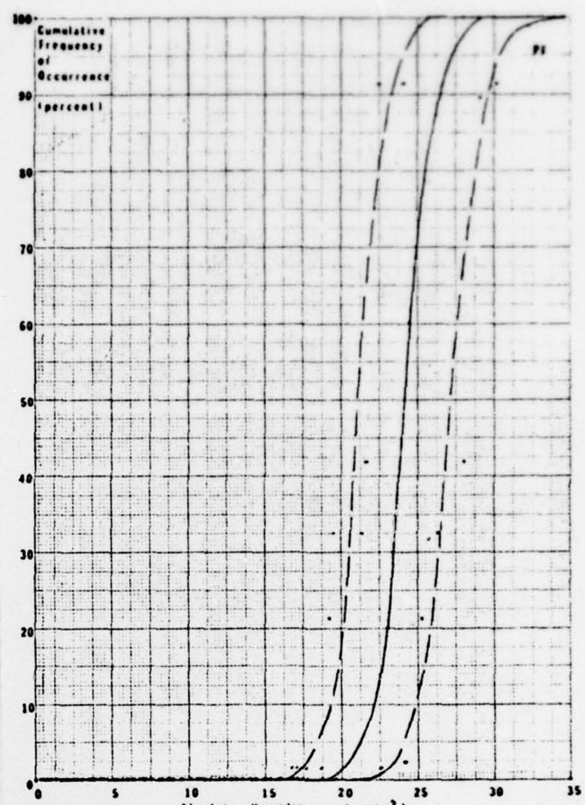


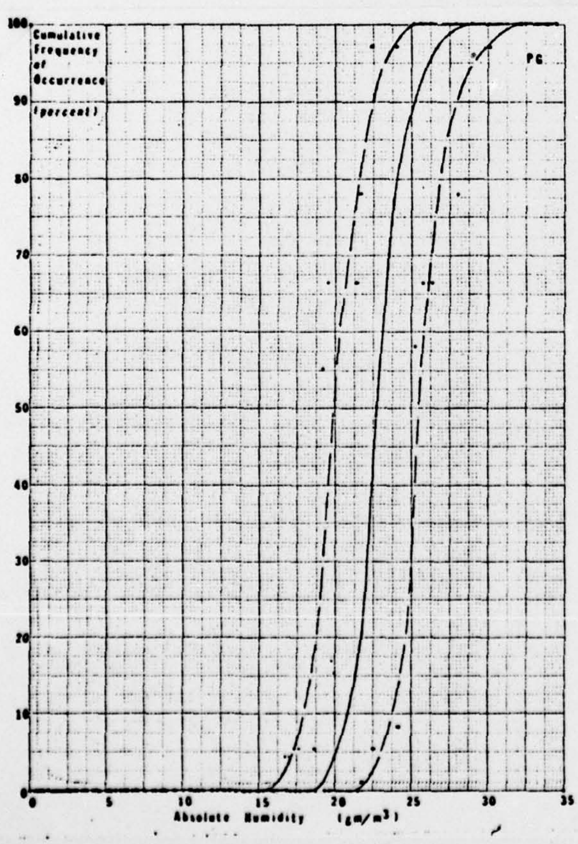
Cumulative Frequency of Occurrence (percent)
PC
Absolute Humidity (gm/m³)

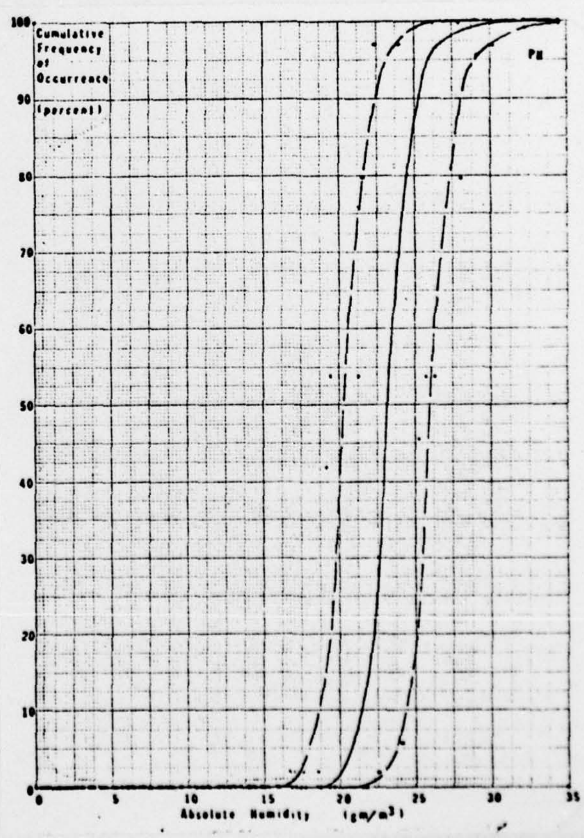


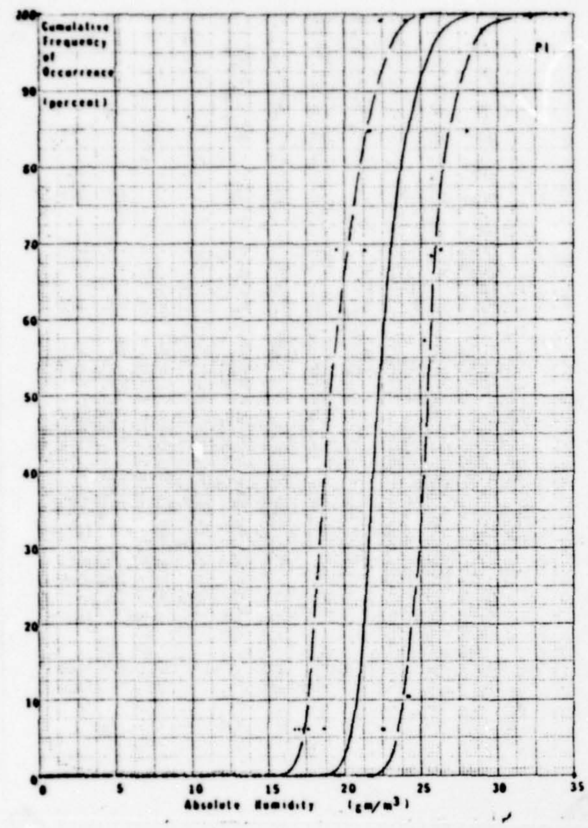
Cumulative Frequency of Occurrence (percent)
PD
Absolute Humidity (gm/m³)

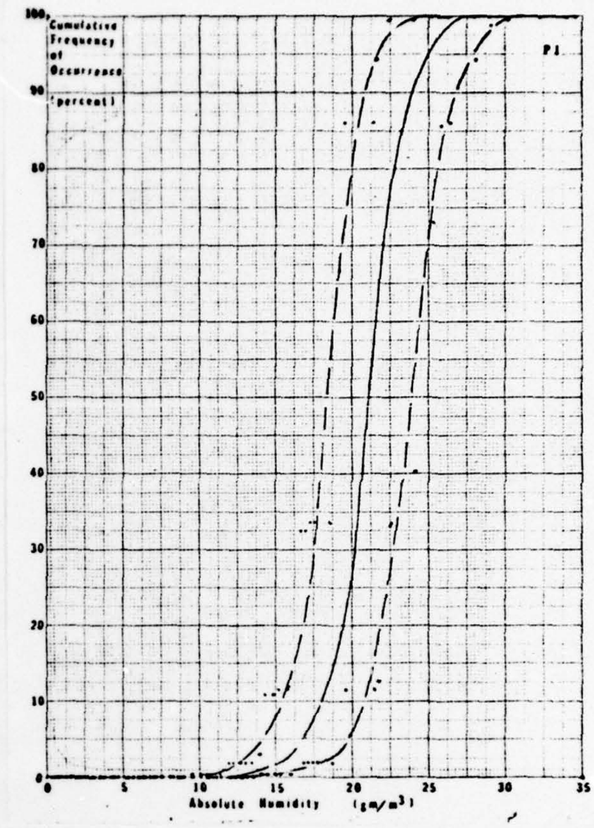

Cumulative Frequency of Occurrence (percent)
PE
Absolute Humidity (gm/m³)

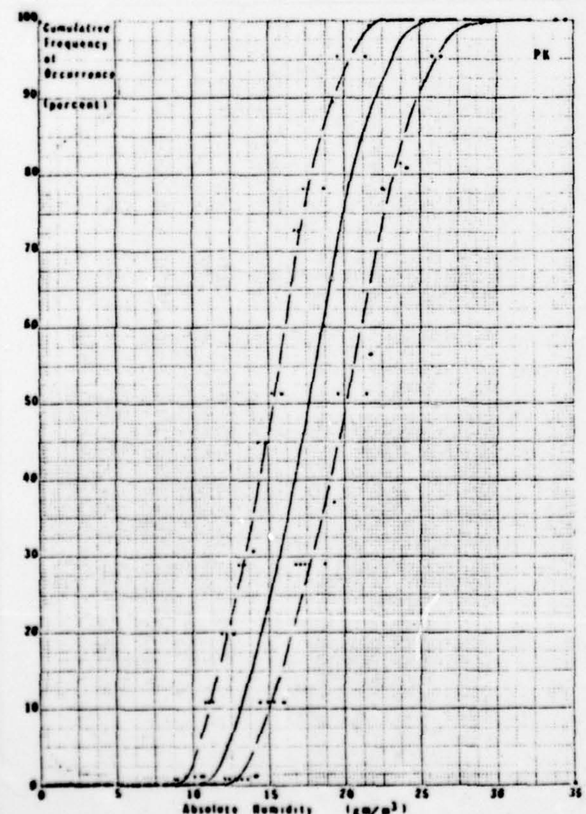

Cumulative Frequency of Occurrence (percent)
PF
Absolute Humidity (gm/m³)

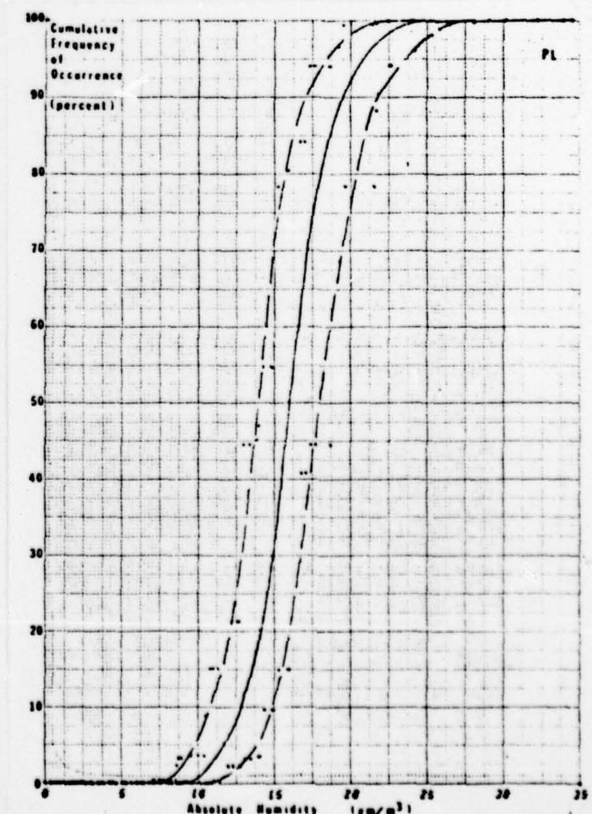

Cumulative Frequency of Occurrence (percent)
PG
Absolute Humidity (gm/m³)

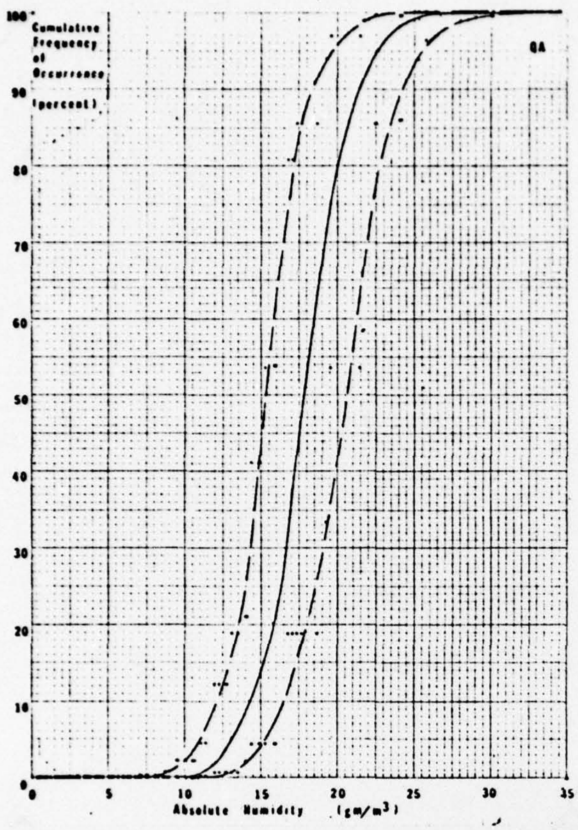

Cumulative Frequency of Occurrence (percent)
PH
Absolute Humidity (gm/m³)

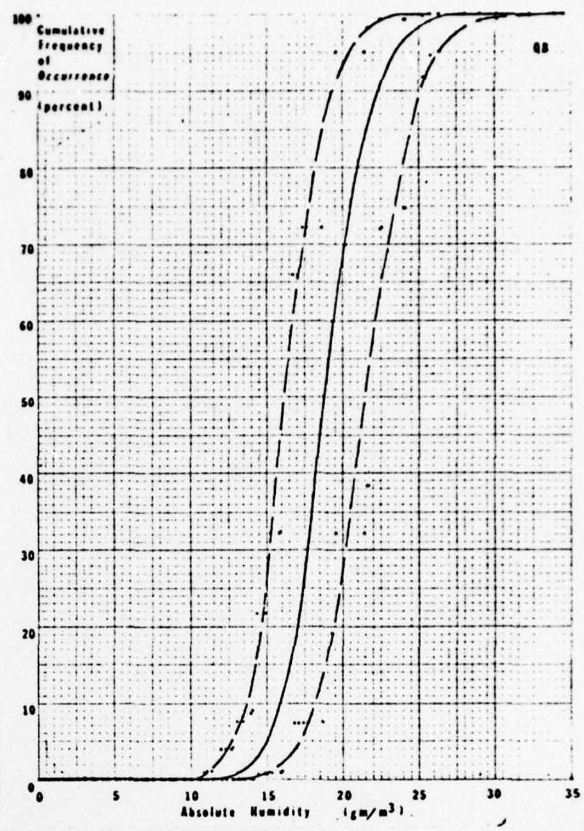

Cumulative Frequency of Occurrence (percent)
PI
Absolute Humidity (gm/m3)

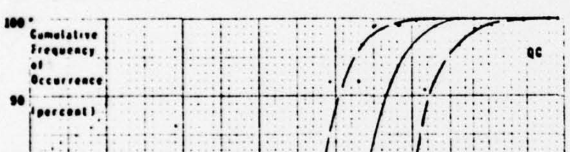

Cumulative Frequency of Occurrence (percent)
PJ
Absolute Humidity (gm/m3)

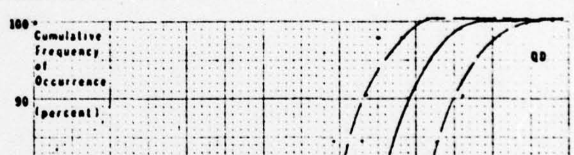

Cumulative Frequency of Occurrence (percent)
PK
Absolute Humidity (gm/m3)

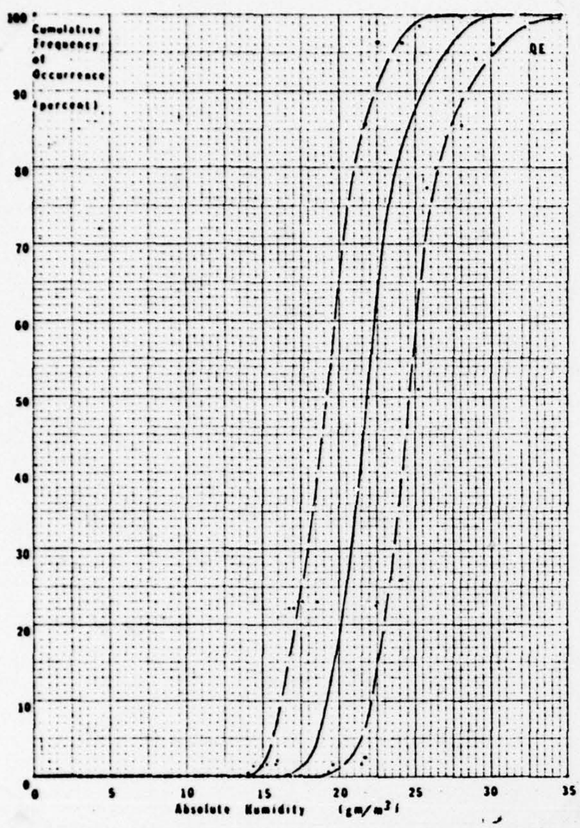

Cumulative Frequency of Occurrence (percent)
PL
Absolute Humidity (gm/m3)


QA
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m3)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100

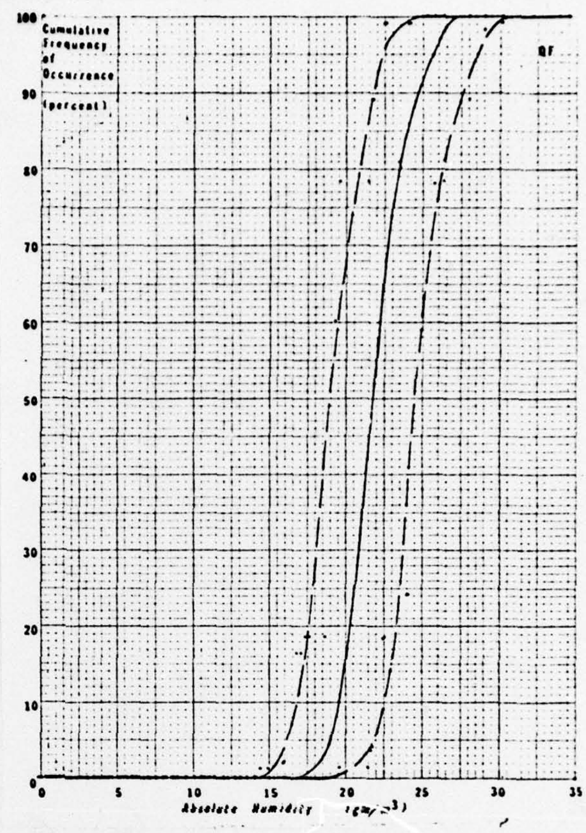

QB
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m3)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100


QC
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m3)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100

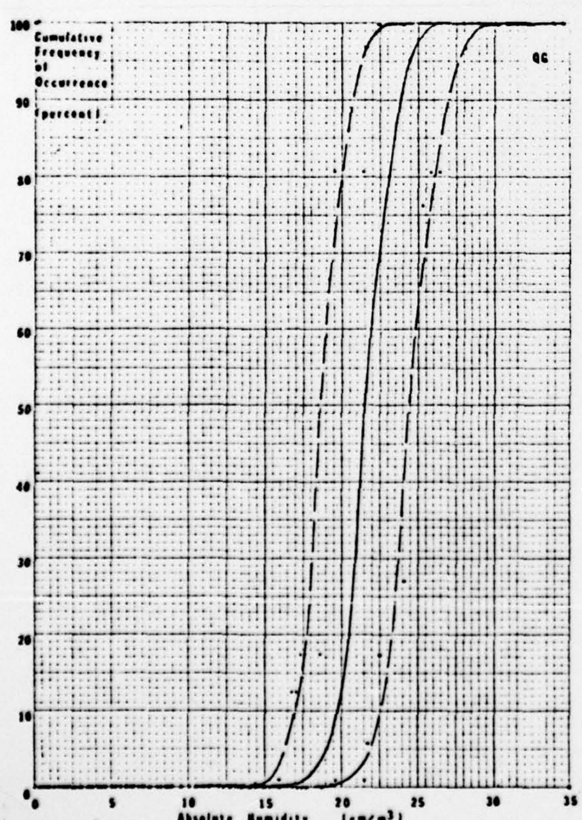

QD
Cumulative Frequency of Occurrence (percent)
Absolute Humidity (gm/m3)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100



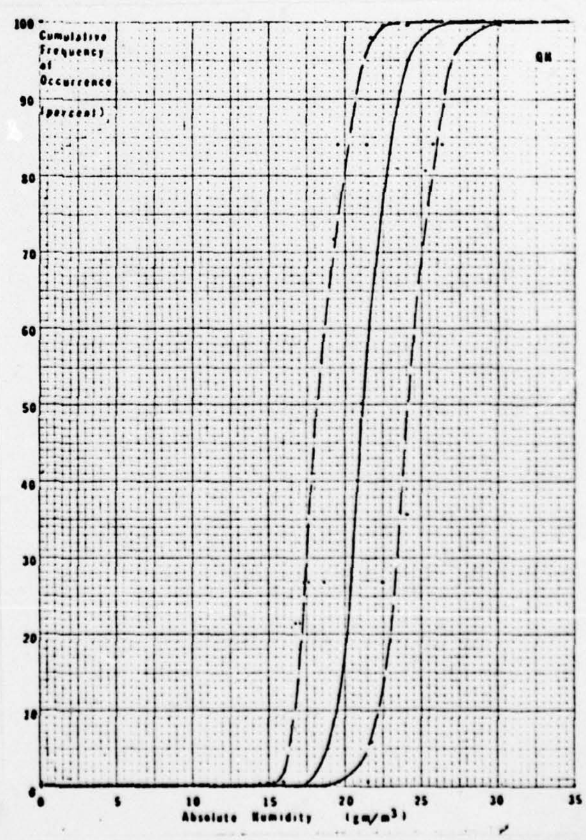
Cumulative Frequency of Occurrence (percent)
QE
Absolute Humidity (gm/m³)



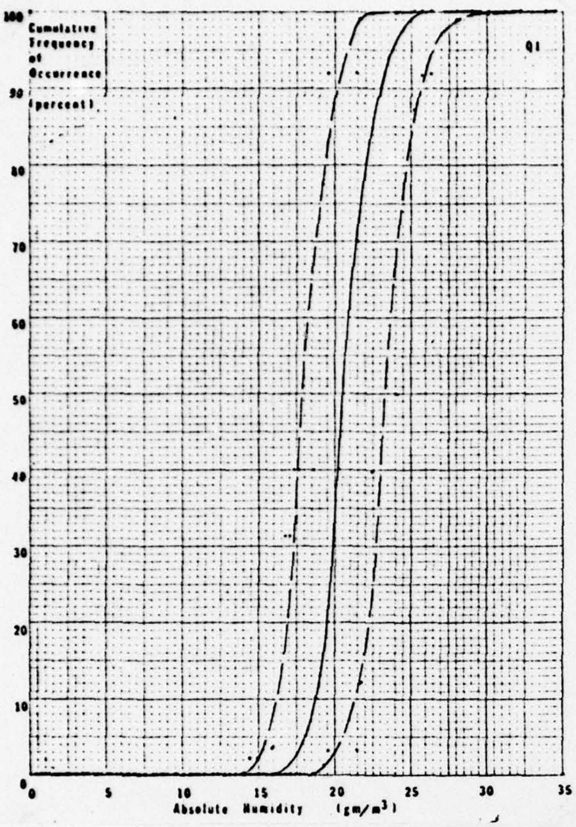
Cumulative Frequency of Occurrence (percent)
QF
Absolute Humidity (gm/m³)

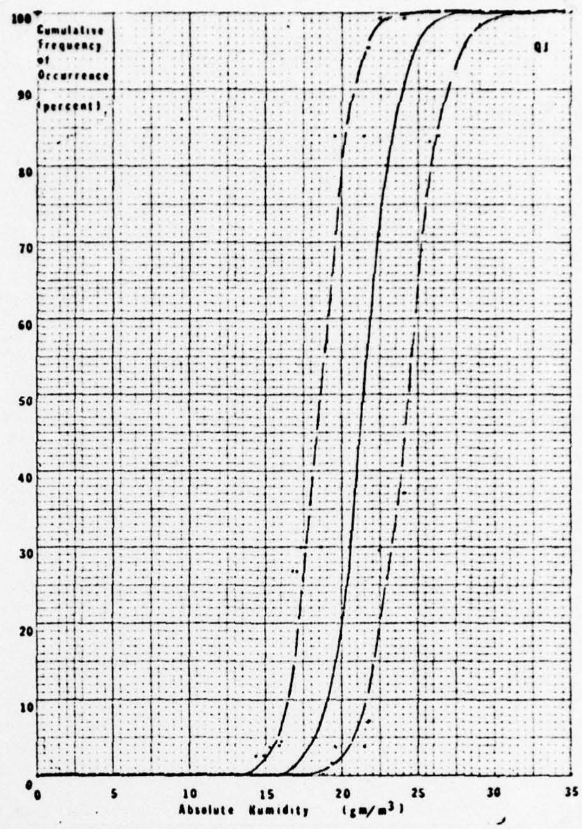


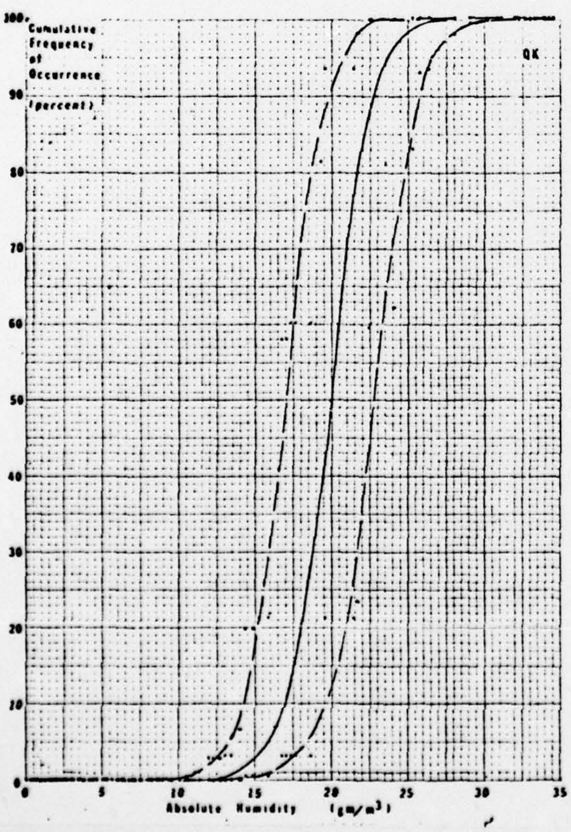
Cumulative Frequency of Occurrence (percent)
QG
Absolute Humidity (gm/m³)

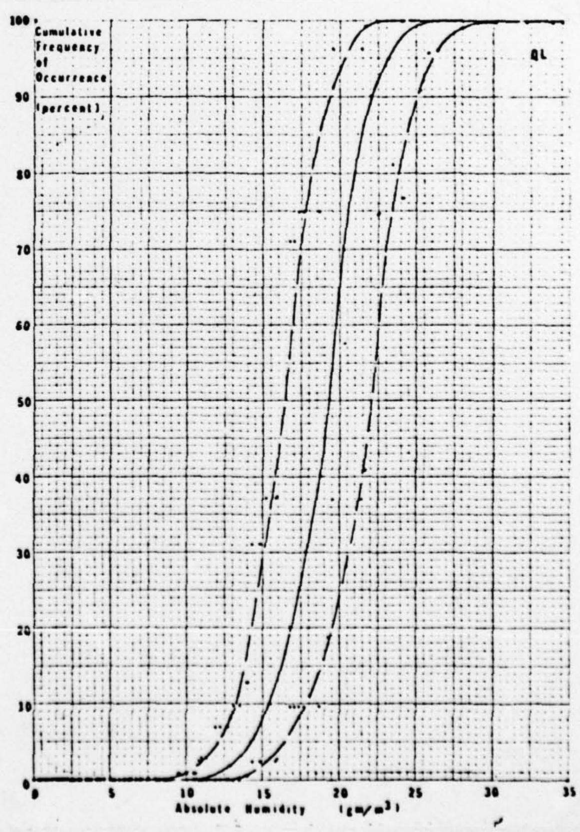


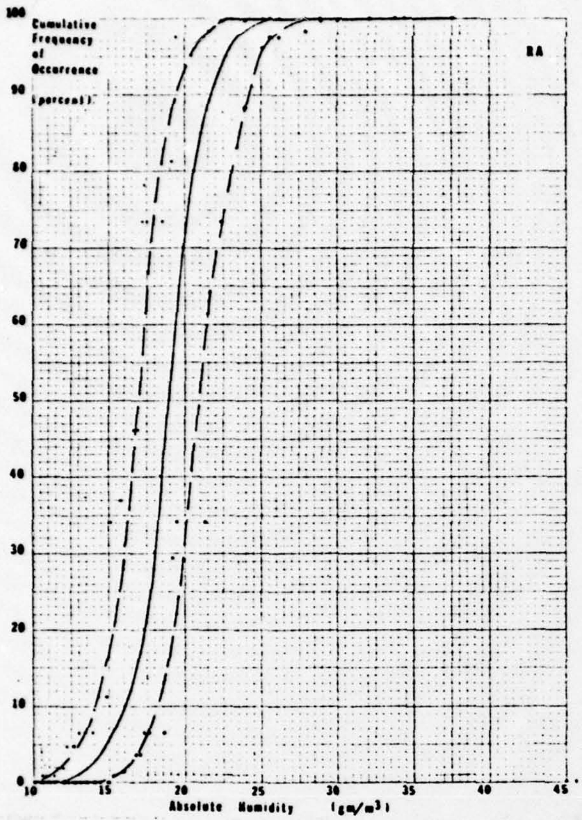
Cumulative Frequency of Occurrence (percent)
QH
Absolute Humidity (gm/m³)

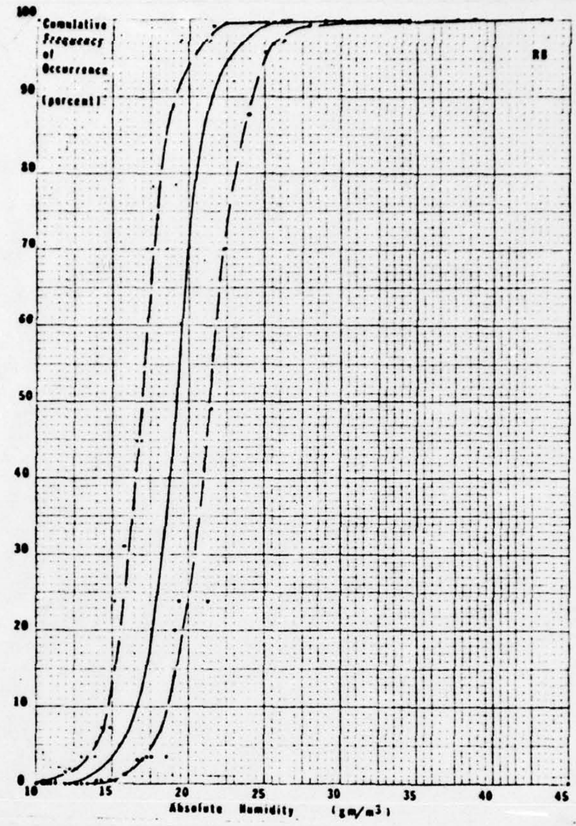

Cumulative Frequency of Occurrence (percent)
QI
Absolute Humidity (gm/m3)

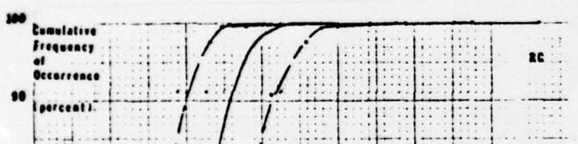

Cumulative Frequency of Occurrence (percent)
QJ
Absolute Humidity (gm/m3)

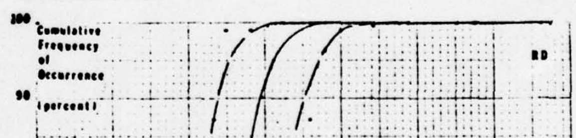

Cumulative Frequency of Occurrence (percent)
QK
Absolute Humidity (gm/m3)

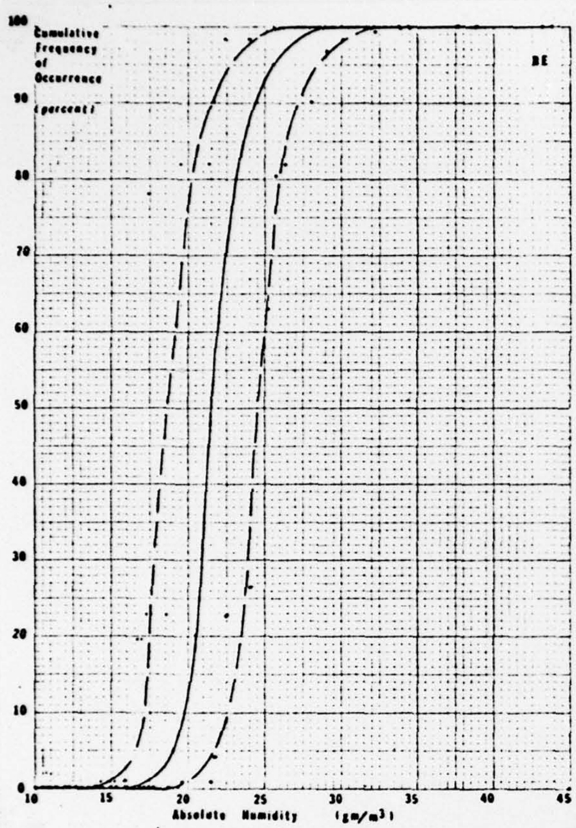

Cumulative Frequency of Occurrence (percent)
QL
Absolute Humidity (gm/m3)

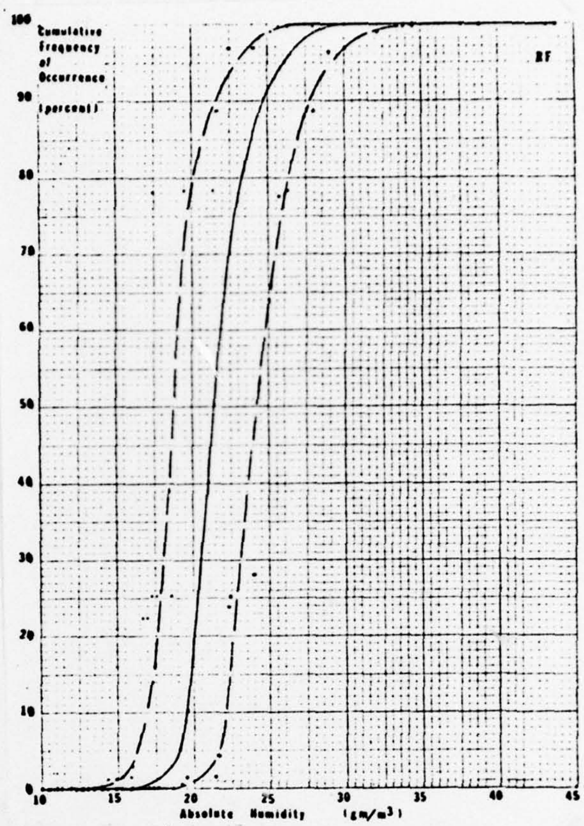

Cumulative Frequency of Occurrence (percent)
RA
Absolute Humidity (gm/m3)

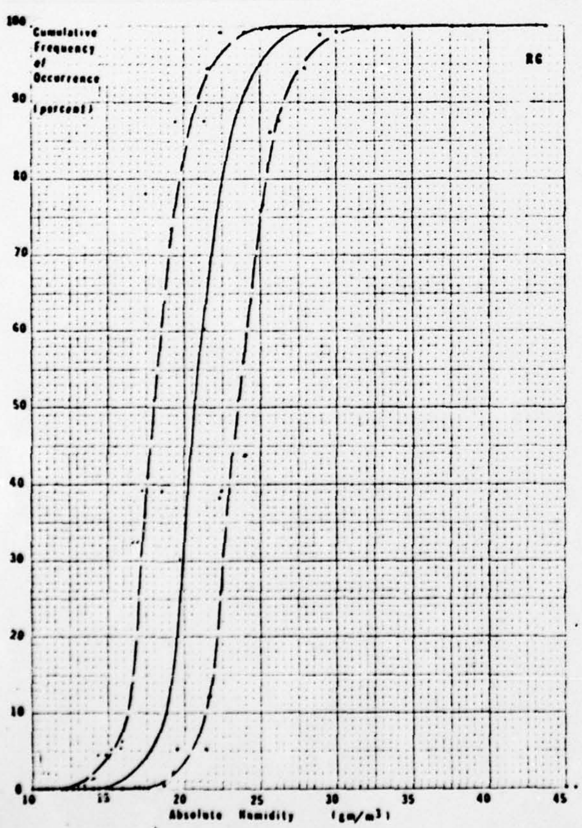

Cumulative Frequency of Occurrence (percent)
RB
Absolute Humidity (gm/m3)

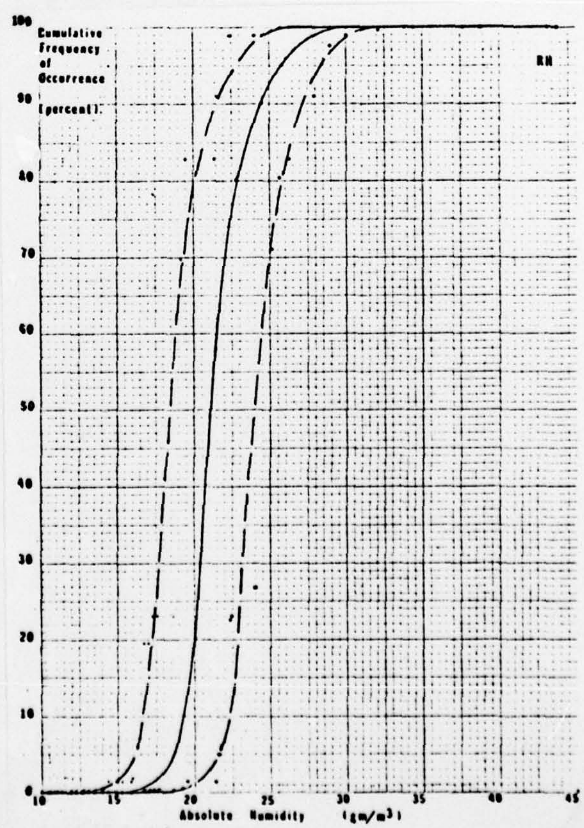

Cumulative Frequency of Occurrence (percent)
RC
Absolute Humidity (gm/m3)

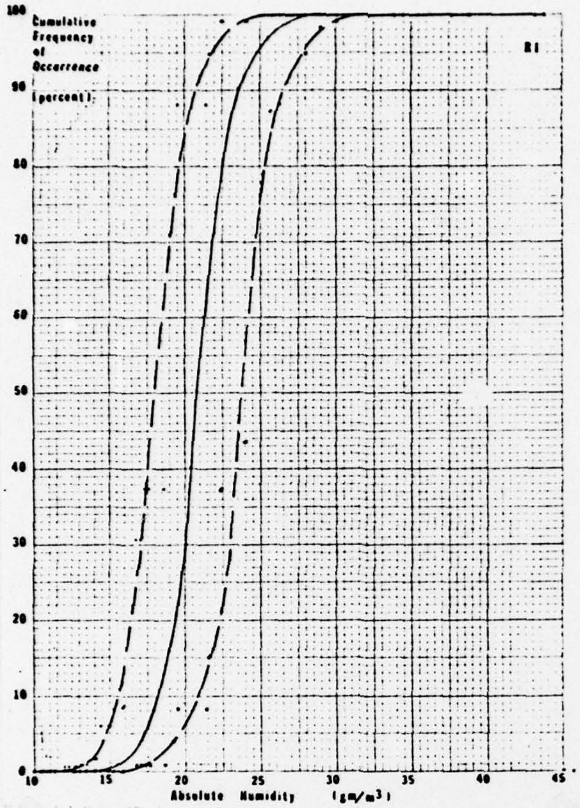

Cumulative Frequency of Occurrence (percent)
RD
Absolute Humidity (gm/m3)

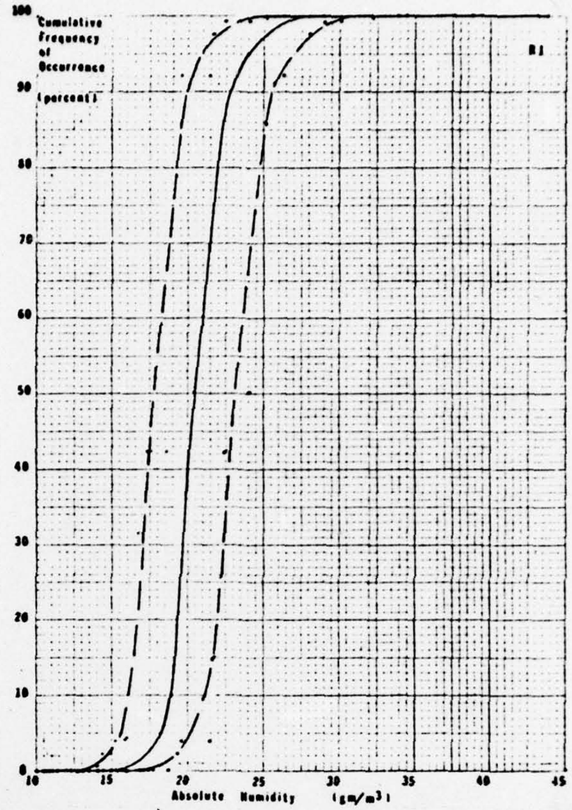

Cumulative Frequency of Occurrence (percent)
RE
Absolute Humidity (gm/m^3)

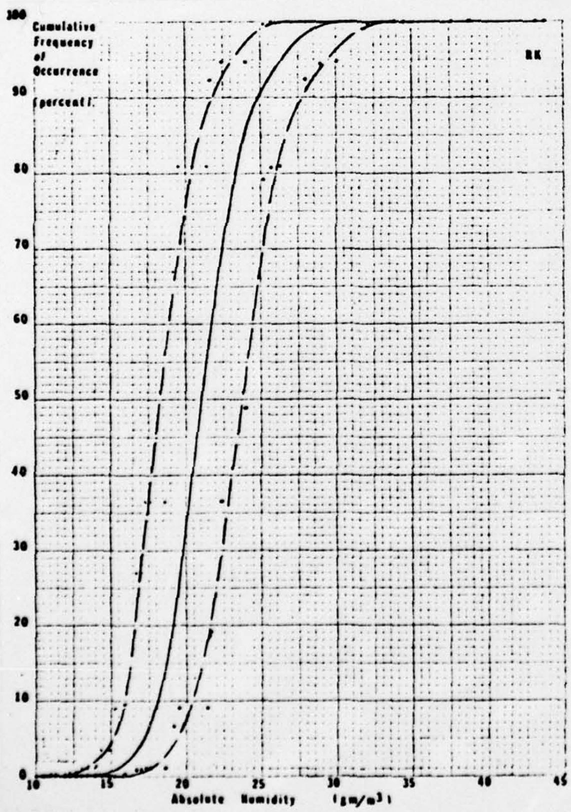

Cumulative Frequency of Occurrence (percent)
RF
Absolute Humidity (gm/m^3)

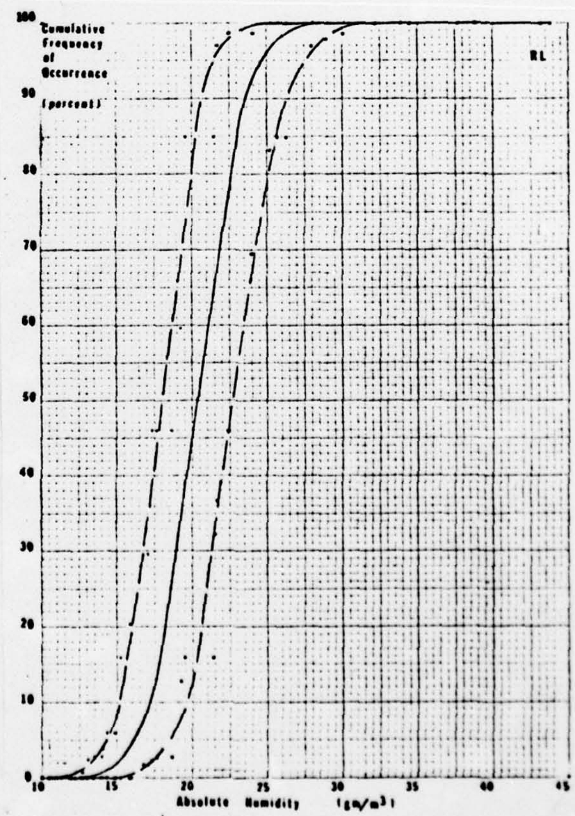

Cumulative Frequency of Occurrence (percent)
RG
Absolute Humidity (gm/m^3)

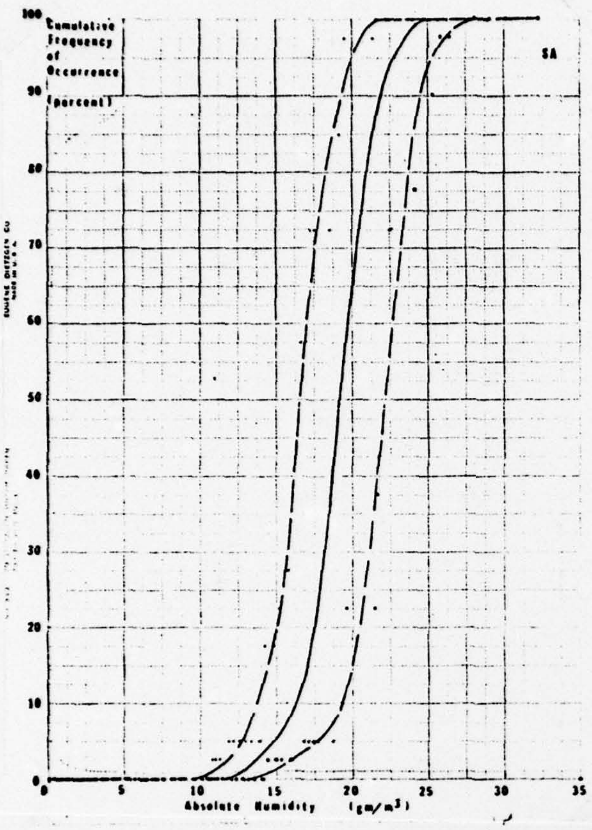

Cumulative Frequency of Occurrence (percent)
RH
Absolute Humidity (gm/m^3)

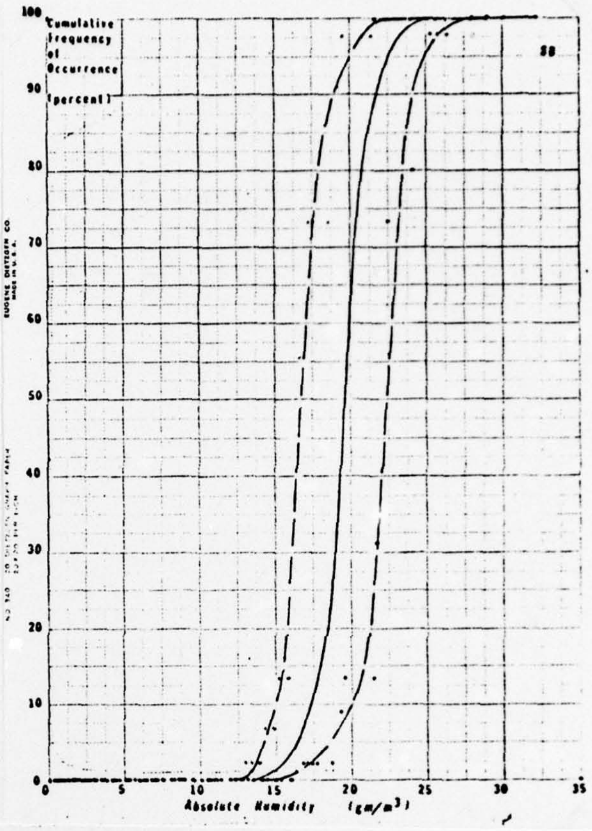

Cumulative Frequency of Occurrence (percent)
RI
100 90 80 70 60 50 40 30 20 10 0
10 15 20 25 30 35 40 45
Absolute Humidity (gm/m3)

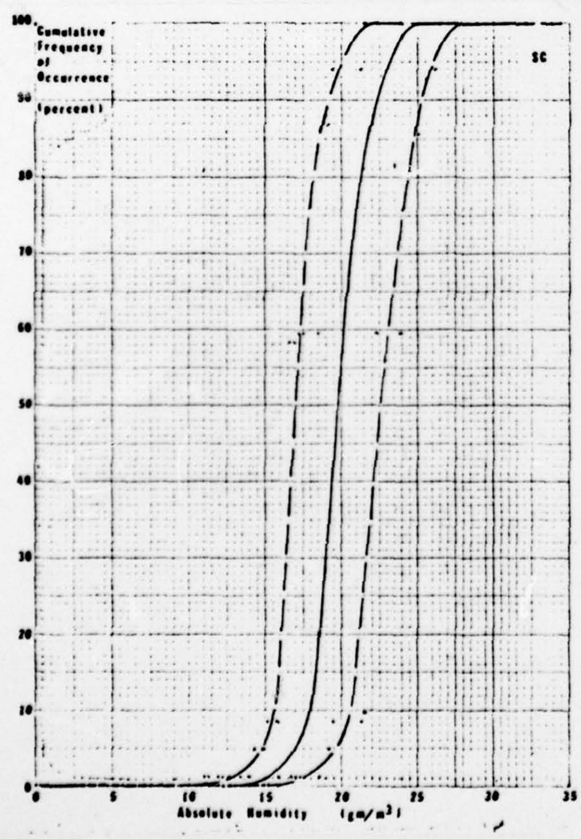

Cumulative Frequency of Occurrence (percent)
RJ
100 90 80 70 60 50 40 30 20 10 0
10 15 20 25 30 35 40 45
Absolute Humidity (gm/m3)

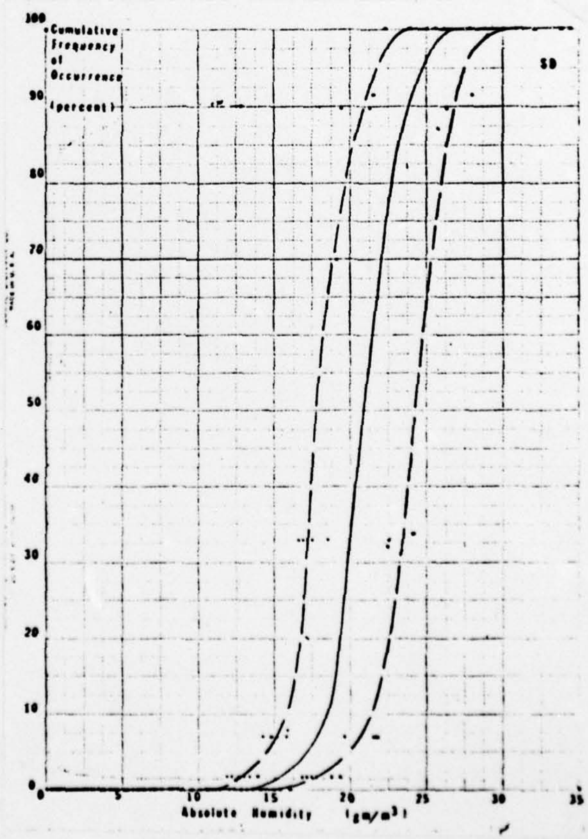

Cumulative Frequency of Occurrence (percent)
RK
100 90 80 70 60 50 40 30 20 10 0
10 15 20 25 30 35 40 45
Absolute Humidity (gm/m3)

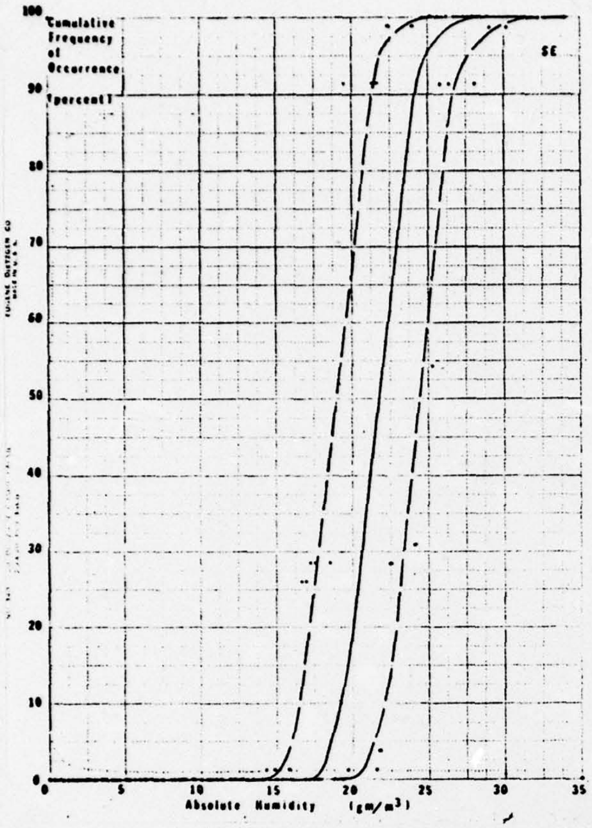

Cumulative Frequency of Occurrence (percent)
RL
100 90 80 70 60 50 40 30 20 10 0
10 15 20 25 30 35 40 45
Absolute Humidity (gm/m3)

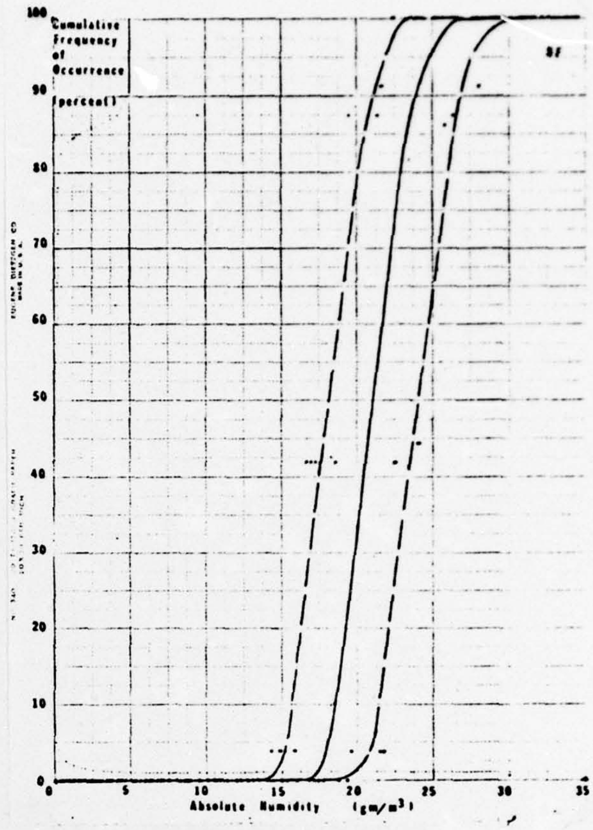

Cumulative Frequency of Occurrence (percent)
5A
Absolute Humidity (gm/m³)

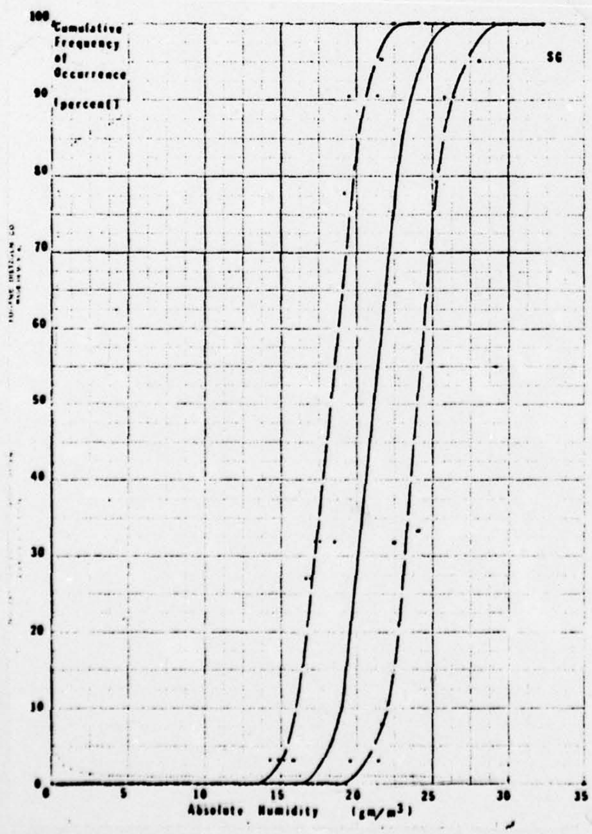

Cumulative Frequency of Occurrence (percent)
5B
Absolute Humidity (gm/m³)

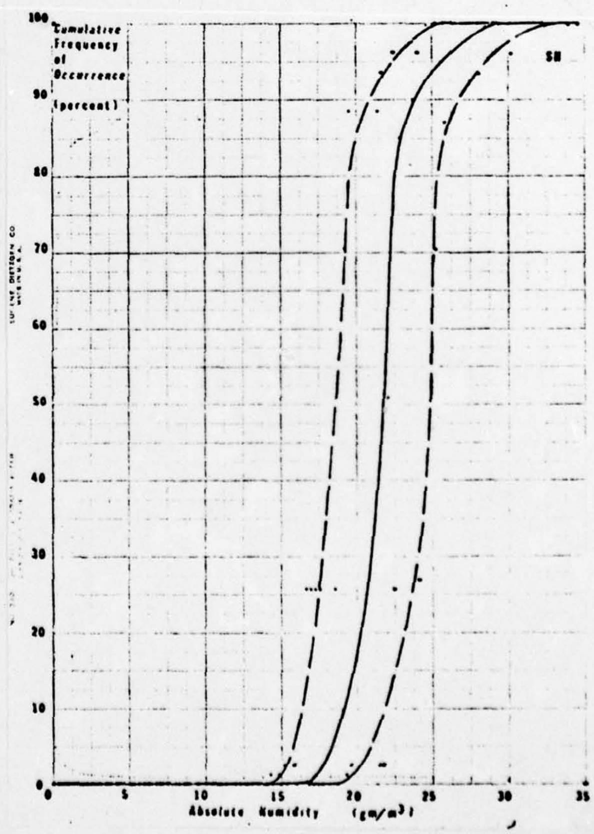

Cumulative Frequency of Occurrence (percent)
5C
Absolute Humidity (gm/m³)

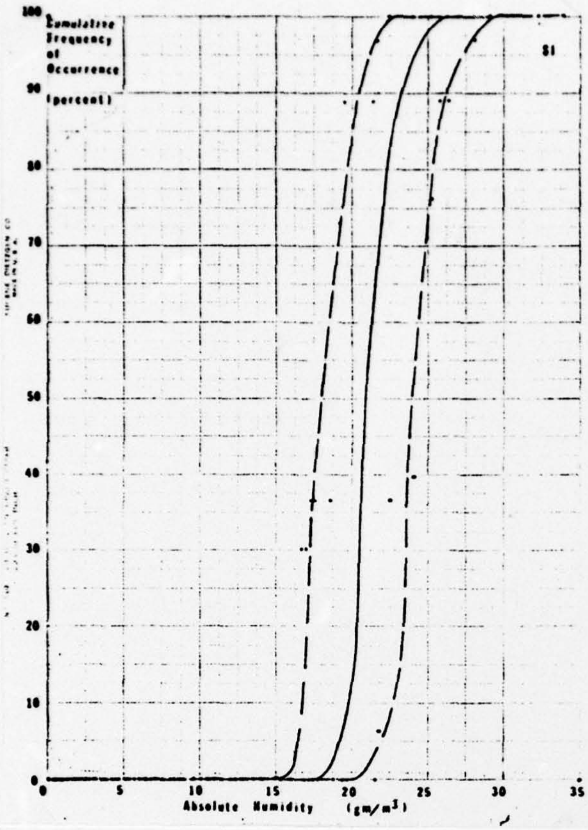

Cumulative Frequency of Occurrence (percent)
5D
Absolute Humidity (gm/m³)

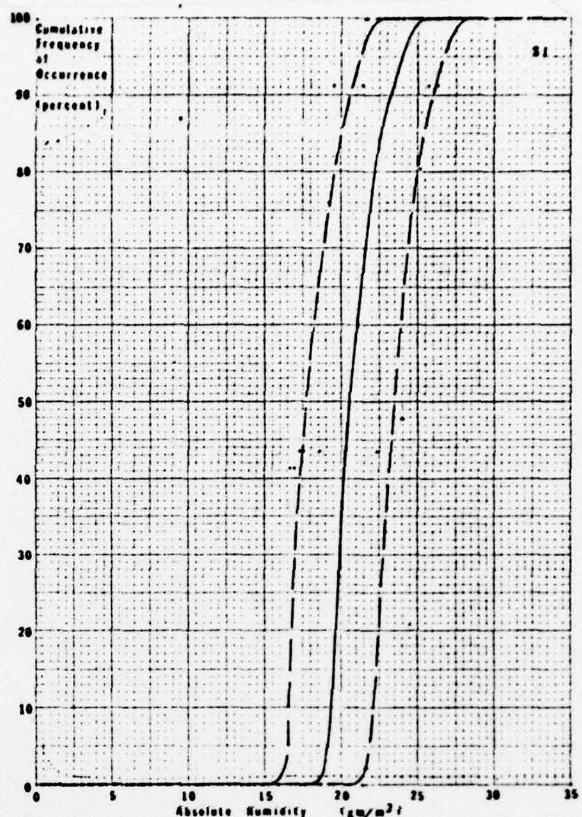

Cumulative Frequency of Occurrence (percent)
SE
Absolute Humidity (gm/m³)

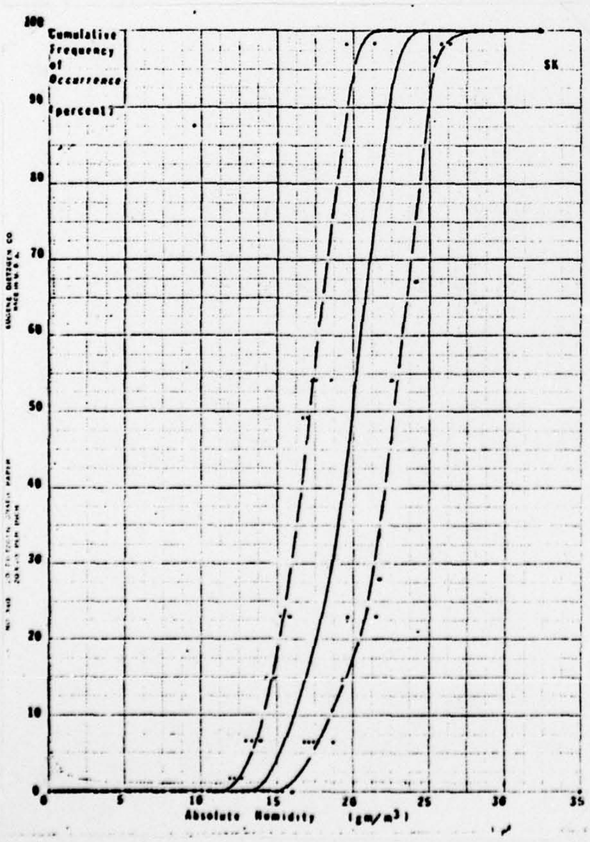

Cumulative Frequency of Occurrence (percent)
SF
Absolute Humidity (gm/m³)

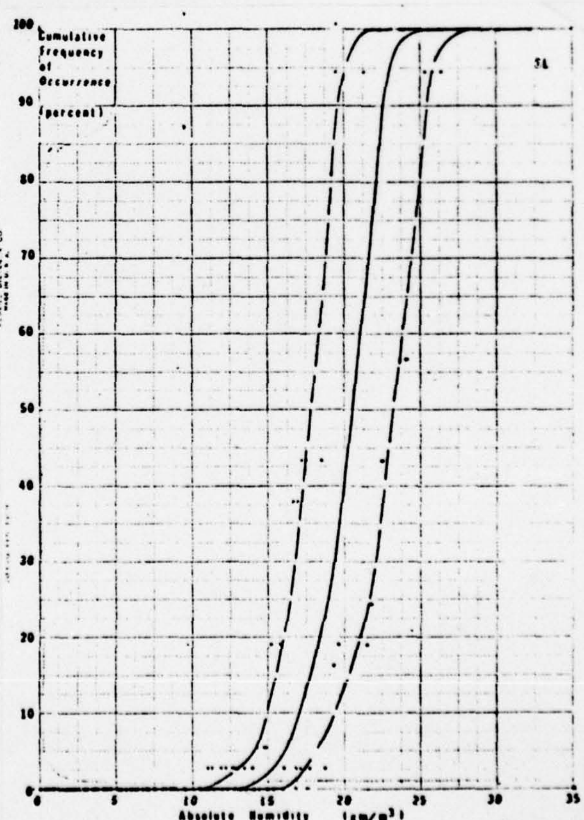

Cumulative Frequency of Occurrence (percent)
SG
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
SH
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
SI
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
SI
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
SK
Absolute Humidity (gm/m³)


Cumulative Frequency of Occurrence (percent)
SL
Absolute Humidity (gm/m³)